

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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BY J. CLARK JEFFERSON, A.R.S.M., WH. SC.,

Mining Engineer, Wakefield.

(Formerly Student at the Royal Bergakademie, Clausthal.)

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SECTION V.

Before proceeding to consider the lining of shafts by brickwork, masonry, or iron, it will be advisable to discuss some of the preliminary operations to sinking the shafts, the choice of form, position, &c., of shafts, and the sinking operations.

In arranging for the opening out of an untouched mineral field, it will be well to consider, first, whether it will be best for the future development and working of the district to open out the district by means of shafts or levels. When the deposit lies pretty nearly horizontal, and at some considerable depth, and where the surface of the country is comparatively level, we shall have no alternative but to sink shafts in order to get at the mineral. Where the country is of a hilly character we shall be able to dispense more or less with shafts, by driving levels into the side of the hills at or near the bottom of deep valleys. Even in this latter case we may find it more advantageous to open out the deposit by means of shafts rather than levels, since the former will in general open out a deposit more quickly than the latter. Take, for example, the case of a coal seam dipping at an angle of 5°, and that the height which the mouth of the shaft would be above the outcrop of the bed (the mouth of the adit level) at 30 yards, then the relative lengths of the shaft and level (which we suppose driven in the direction of the dip of the bed) to open out the seam at a depth of 100 yards below the outcrop would be—130 yards depth of shaft, and 1150 yards the length of the level. Here it is evident that although coal be worked almost immediately on commencing to drive the level, still since a shaft would allow of the roads being driven in several directions at once, the field would be more rapidly opened out to its full producing power by sinking the shaft, and this would apply still more strongly if the level were driven below the outcrop to intersect several beds. This advantage diminishes as the dip of the bed increases. The most advantageous method would be to drive the level (if in the seam) and sink the shaft at the same time.

In the case of lodes in hilly countries it will almost always be most advantageous to work out the lode by means of successive levels down to the horizon of the deepest adit level, when it becomes necessary to sink shafts from and below the deepest adit level. Such shafts are denominated "deep workings" shafts. These shafts may be necessary on account of the probable exhaustion of the lode before the driving of a deeper adit can be completed, and they must be furnished with pumping and winding apparatus, and offer a travelling road for the miners.

The direction in which a lode dips with regard to the contour of the country may sometimes be decisive as to whether the lode is opened out by means of drifts or shafts. Where the lode dips in the same direction as the side of a long mountain ridge the length of drift, even deep down in the valley, may be comparatively short; whilst if the lode dipped in the opposite direction the intersection of the lode at a considerable depth by a vertical shaft might be effected sooner and more cheaply than by means of a drift.

When it is intended to follow a lode to a considerable distance below the level of the deepest adit, one or more principal shafts will be sunk from the surface, and according to the purpose they are intended to serve may be denominated winding shafts, pumping shafts, travelling shafts, and ventilating shafts. It is more generally the case that the principal shafts serve two or three purposes, and are then divided into corresponding portions or divisions, called "Trummer." Most large mines are provided with both principal and deep workings shafts.

Besides principal and deep workings, shafts, the convenience or necessities of transport, ventilation, and drainage cause the sinking of shafts from one level to another. When such a shaft serves principally the purpose of lowering the ore into an underlying level it is denominated a "Rollschacht," when the transport is effected by means of a pulley and brack it is called a "Bremschacht." It may occur that two lodes run pretty close together, and where one of them is well provided with principal shafts and adits that the other may be worked by a shaft, which is sunk from a cross-cut from the principal shaft or level of the other lode, the shaft terminating there, and not reaching to the surface. In coal mines likewise, where several seams are being worked, it is often more convenient to pull from one level, the seams being connected by the auxiliary shafts from the one to the other, but not reaching to the surface. Such shafts are called "staple" pits, or "blind" shafts.

Analogous to the arrangement of staple and principal shafts is the rarely occurring case of so-called "broken shafts." These are shafts which for a certain distance descend vertically. A slightly inclined or a short horizontal drift leads to a continuation of the shaft vertically downward at some distance from the first vertical portion; this second vertical portion may likewise terminate in a short drift, which may bring the next vertical continuation vertically below, or even at some distance aside from, each of the other two vertical portions. Such "broken" shafts may be found in Japan, each vertical portion being of such a height that a man can conveniently pump the water from the one horizontal drift to the other. These shafts are extremely inconvenient for pumping or winding purposes.

One of the most important questions the mining engineer has to consider is in what part of the district must the shafts be sunk? In the case of metalliferous mines, and where the shaft is intended to be of comparatively small dimensions, and where the lode dips at a very considerable angle, it may be advantageous to sink the shaft on the lode itself. When the lode gets worked out in the upper portion, and it is necessary to sink it further, it sometimes occurs that with a great depth the dip of the lode changes, and the shaft, following the lode, becomes so irregular that it will be found more advantageous for the pumping and winding apparatus to sink a completely new vertical shaft. Not only are shafts sunk on the lode (following the dip), but sometimes in the longitudinal extension of the lode, the shaft having thus an inclined position with respect to the dip line of the lode. Such an arrangement will be useful for following an inclined course of ore in the lode, or for working under water (as under the sea, at Botallack and Wheal Friendship Mines), or for utilising machinery at one end of the lode, or for hauling and pumping from a branch level at the other end of the lode.

In all cases where we have no reliable data as to the ore yielding qualities of a lode at great depths, it is more prudent to commence by following the lode, and afterwards to sink a shaft to cut the lode at a certain depth, and to prolong the shaft beyond the point where it intersects the lode, the shaft both above and below being connected with the lode by means of cross-cuts. Most shafts that are driven on the lode become crooked, and it is evident that the entailed inconvenience and expense may in many cases take away all the profit of the concern. In the South of France in the highly inclined coal seams the shafts were formerly sunk in the seam; the inconvenience thus entailed hindered the drawing arrangements, &c., so much that these shafts have been abandoned, and replaced by vertical shafts sunk through the neighbouring strata.

The advantages of shafts sunk on the lode may be summed up as follows:—1. Since ore may be won from the shaft and the neighbourhood of the shaft, except what is required to be left for a safety pillar during the sinking, the cost of the shaft may be partially or completely covered by the profits.—2. Since the neighbouring or country rock is not cut through less water may be met with.—3. The exploration of the lode can be carried on simultaneously

with the sinking of the shaft.—4. The opening out of the upper part of the lode by levels can be effected in much less time.

The disadvantages are:—1. A greater total length of shaft requires to be driven, according to the dip of the lode, in the proportion of 1 to the sine of the angle of dip of the lode (the inclination of the shaft to the horizon).—2. A greater outlay in fitting up the shaft, as well as a greater amount of material is required, owing to the greater length.—3. In consequence of the irregularity with which many lodes dip, the mechanical arrangements in the shaft for winding, travelling, and pumping are more complicated and expensive, and the efficacy of the apparatus is lowered by such arrangements, which is a point of vital importance where the output per day is considerable; for example, in the coal mines near Creusot, in the South of France, the former method of sinking the shaft in the nearly vertical coal seam itself has lately been discontinued.—4. Inclined shafts are more liable to disturbance, and in order to keep them safe and open entail a greater expense in the timbering.—5. Where several veins run pretty near to each other, and approximately parallel, a safety pillar will have to be left in all the veins near the shaft, and the workings in the other lodes would have to be connected by cross-cuts, and the conveyance of the minerals from all the veins would be less convenient.

With respect to the position of the shaft in the deposit or out of it the following general rule may be stated. Where the capital at disposal is small, and the probable ore bearing depth of the lode not great, and where the district also is only small, and the dip of the lode pretty regular, it will be most advisable to sink the shaft in or on the lode itself; but when the contrary holds good, namely an extensive royalty, ore at great depths, many lodes irregular in their dip, and the capital ample, then the shafts should be sunk vertical in the country rock.

With regard to choosing the position of a vertical shaft, which shall intersect a lode, and serve for opening out the lode, the following considerations may be of importance. The shaft should always be sunk to the dip side of the strike or outcrop of the lode, otherwise the various drifts from the shaft to the lode will be of excessive length. The position of the shaft with regard to the longitudinal extension of the lode will be to a great extent dependant on the surface contour of the country, the existing roads, railways, and other conveniences of transport, and also the estimated ore bearing qualities of the lode in different parts. The distance of the shaft from the outcrop of the lode will depend greatly upon the probable depth to which the lode will be followed. When this depth is known it will be comparatively easy to determine the position of the shaft, in which the total length of the drifts or cross-cuts from the shaft to the lode will be a minimum. This where the cross-cuts are driven at equal distances apart, is that position in which the shaft when sunk perpendicularly will cut the lode at half the depth to which it is intended to follow it.

Suppose two vertical shafts were sunk to work the same lode, one sunk from a place in the outcrop, and the other sunk in such a position as to intersect the lode at half the depth to which it is intended to work it; and suppose, moreover, that there were an equal number of cross-cuts driven (at equal distances apart) from both shafts to intersect the lode, then the total length of those driven from the shaft sunk vertically from the outcrop, would amount to just double the total length of those driven from the shaft which intersected the lode at half the depth of the shaft. If the vertical shaft were sunk outside the outcrop, so as not to intersect the lode at all, then the total length of each drift or cross-cut would be longer by the distance between the outcrop and the mouth of the shaft than they would be if the shaft were sunk perpendicularly from the outcrop. The distance of the position of the shaft from the outcrop of the lode (which must be measured at right angles to the strike of the lode and on the dip side of the lode), in order that the shaft shall intersect the lode at half its depth, is given in the following formula:—

$$d = \frac{S}{2} \cotangent \alpha$$

where α represents the inclination of the lode to the horizon (is the dip), S the total depth of the shaft, and d the distance of the mouth of the shaft from the outcrop of the lode. Where there are several lodes or seams of coal the centre line of the outcrops of all the lodes must be taken as the outcrop in question when using the above formula.

COAL FIELD OF THE STORMBERGEN, SOUTH AFRICA.

BY FRED. W. NORTH, M.E., F.G.S.

[Read at the South Staffordshire and East Worcestershire Institute of Mining Engineers.]

[Concluded from last week's Journal.]

Amongst these people I found considerable difference of opinion as to the value of the coal upon their farms; some had already made slight openings in it, and were preparing to do more, but these were comparatively few, and they had invariably an exaggerated idea of its value. Some were very apathetic, and cared little about it; others almost ridiculed the thought of working it. One upon whose farm I had previously been and seen the coal, but not its owner, told me that there was no coal upon his "veldt." I assured him there was, and promised to bring him a lump in a day or two. He said, "Oh no, there is none, and if there is it stinks. I like the moss best." Now on this farm we drove headings in a very fair seam of coal, and several others also, at both higher and lower levels. This particular coal is a good one, with a shale roof and floor. I caused a headway to be driven into it for 30 ft., and during that distance it indicated a regular seam, having 2 ft. 9 in. of coal with two partings of shale respectively 5 and 9 in. in thickness, as shown in the section referred to. The quality of the coals is superior to those which have already been alluded to in this neighbourhood. As usual, it still contains a large percentage of ash—certainly 30 per cent., but this is a seam which can be economically worked, and from its regularity a large quantity of it may be found. I took two sections of this coal seam upon this farm at about two miles from each other. One proved in the heading is a very fair seam, much above the average, and the other in a little pit on the right hand side of the road from Burghersdorp to (and about 300 yards before reaching) the Land Fontein Farmhouse. The next section was taken also upon this farm at the end of a heading driven 10 ft. in a small seam of coal lying in the bed of the Bamboes Berg river, where it runs through this property. The roof of it is a very peculiar deposit of conglomerate sandstone, with fossil trunks and branches of trees, hematitic deposits of ironstone and colour, and pebbles of all sizes curiously mingled together.

Mr. Vice, of Molteno, appears to have been the pioneer of the coal trade in South Africa, and as early as 1859 opened up an outcrop, but being unable to make favourable terms with the owner decided to remove the scene of his explorations to some other outcrop, providing he could discover a workable one. The result of his researches was that in 1864 he commenced his colliery, which with variable success he has continued to work up till the present date, and founded the site of the village of Molteno. The average thickness of the coal he is working is 2 ft. 5 in., divided into three bands by 1 ft. 7 in. of shale; it is a very strong coal, and the bulk of it breaks into large cubical lumps, admirably adapted for storing. The percentage of slack is small, and exposure to the weather has but little effect upon it when compared with some of the English locomotive coals. It burns with little smoke, throws off much heat in the furnace, and leaves a compact ash, averaging about 35 per cent. of the whole seam; it may be used for any steam purposes if proper appliances are provided for dealing with the inorganic matters. Mr. Vice's first working was by means of a heading driven from the outcrop, but the quality being indifferent he sank his No. 1 pit, from which he worked for some years. In course of time this pit was stopped, and his present one (No. 2) was sunk down to the coal, and has been supplying the limited demand of the neighbourhood and surrounding towns within 60 miles radius with about 500 tons per annum. Of course the appliances and mode of working to supply so small a demand are of the most primitive character.

The Bushman's Rock Coal Mine has evidently been opened with

energy, and at considerable cost to the owners. It is at the foot of the Stormbergen, and workings were commenced in June, 1875, and suspended in December, 1876, but are still open and ready for work. A slight dip inwards, however, and a copious flow of water from the roof rock at various places, cause about 1 ft. or 18 in. of water to cover the greater portion of the floor; but this can easily be overcome by a syphon pump, and should the mine continue to dip the same arrangement will still drain the mine. There is an average of 2 ft. 9 in. of coal over the whole mine, containing about 1 ft. of shale; it has a rock roof like Vice's, and where the coal is in its proper state, and not damaged by proximity to the outcrop, it burns freely, but requires a moderate draught; it contains rather more ash than Vice's, and at present I do not consider it so good, but when the workings have attained a further distance from the outcrop I believe the difference will be very slight, and for all practical purposes they will be the same. I was much interested and took much care in the examination of the whole mine, and believe it will have a good future when Stormbergen coals are more in demand. The general character and quality of the workable coals of this district are very similar, but still inferior to the coals near the Indive river. Most of them are less bituminous, but still make a strong fire in a furnace, and leave a large percentage of ash, certainly averaging 30 per cent., the remains of a lump of coal consumed in the open air being almost as large and nearly the same shape after consumption as before. The following is the analysis of the coal at the Camp Indive river, by Dr. P. Daniel Hahn, of Cape Town:—

Specific gravity	1.587
Carbon	81.021
Hydrogen	3.208
Nitrogen	2.190
Sulphur	0.434
Oxygen	2.178
Ash	30.32
Coke	75.26

In using this coal for locomotive purposes it will be needful to have the engines specially constructed for it; and as the railway engineers of Cape Colony do not contemplate a speed of more than 20 miles per hour, there is little doubt that it may be made of much service for that purpose.

An eminent firm of locomotive engineers say—"We have carefully considered your requirements as to locomotive tank engines, also the analysis of colonial coals, and we think locomotives may be perfectly adapted to their consumption, the great desideratum being that the grate area shall be sufficient to allow for partial stoppage of air from clinker, and also to arrange a system of rocking firebars, which, being worked at pleasure by the engineman, may break the clinker, and cause the ashes to fall through the bars. We are confident from the fact that you say the coal has great heating power, and from a careful study of its composition, that you could obtain by this compound arrangement of large area and moveable bars a very satisfactory result."

The following opinion of Mr. A. N. Ella is well worth notice. It was a fair trial with ordinary outcrop coal, and I am indebted to him for the personal attendance and care he gave to the matter:—

"Ashby Steam Woolwash, Queenstown, Aug. 8, 1878."

"DEAR SIR,—You are aware that we work with a Root's patent water tube boiler and a Tangye's patent horizontal engine. To drive the pump, devil, three washers, and hydro-extractors, and to compensate for back pressure of piston, caused by exhaust blowing below surface to heat water for wool-washing, we required to keep full steam up to the following formula:—1. Pressure in boiler, 85 lbs. per inch, cut off at two-thirds stroke, equal to average 65 lbs. pressure on piston.—2. Stroke, 16 in., 13 revolutions, equal to 346 ft. per minute.—3. Area of piston, 50.25 in. By the ordinary calculation per horse power this indicates 35-horse power, which is what we require to keep going an average day's work at this establishment. On July 31 I fired up with the small coal and breeze, and after kindling with wood used nothing but coal (Mr. Ella usually has wood for fuel). The boiler steamed freely and well, but owing to the superabundance of dust we had unduly to prick the fire, consequently a deal of unconsumable fuel came through the bars. In 8½ hours work I used 1040 lbs. On the next day, Aug. 1, under similar circumstances and in the same time, I used the whole coal alone, and burned 1321 lbs.; this excess of quantity required I found was due to a clay band of about 3 in. thick, which ran through a large portion of the bigger lumps, and this was weighed with the coal, but passed unconsumed through the fire, and had to be raked out through the furnace door, bringing partially consumed fuel with it. The result in 17 hours' work for a consumption of 2368 lbs. of coal, indicating 35-horse power, or as near as possible 4 lbs. of coal per indicated horse power per hour. Total of ash, dust, and unconsumed fuel and the clay band mentioned, 665 lbs., or 28 per cent."

"Now, as regards relative cost compared with wood. Under similar circumstances, of wood we use half to three parts of a load of dry thin wood for a day's work—2200 lbs. to 2300 lbs., or in round numbers twice as much as required of this coal. Wood costs at present about 17. 2s. 6d. per 2000 lbs.—1 ton of your coal is of the same value to us for our purposes as 2 tons of wood. If you can deliver in Queenstown at 2½. 5s. per ton of 2000 lbs., it would be cheaper than wood at 17. 2s. 6d. per 2000 lbs., as the labour of chopping into billets would be saved. A feature worth observing is the very little smoke evolved. Thanking you for the opportunity of making this trial,

A. N. ELLA,
Fred. W. North, Esq., Government Mining Engineer, Dordrecht."

Then, again, Mr. F. R. Tennant, of Burghersdorp, says—"The coal is the best I have had for my woolwash, and I shall be glad to have three more loads, for which I will pay 3½. 10s. per ton of 2000 lbs., delivered in Burghersdorp." The coal sent as a trial to the diamond fields realised 11½. 10s. per ton, and was tried in my presence with much success by the Kimberley Mining Board. Under their large boiler it gave great satisfaction, but the cost of delivery is too great to expect a permanent market there. At Aliwal North it realised upon the open market 4½. per ton for steam purposes. The proprietors of the Eastern Star, Grahamstown, kindly offered to make a trial of the coal, and for this purpose I sent them 600 lbs. The experiment was made on Aug. 7, and the following certificate of result was given by Dr. Atherstone, Mr. B. J. Glanville, and Mr. John Hayton:—Exactly 100 lbs. of the coal was weighed and at 11.7 lighted, the first shovel of coal being put in at 10.37 A.M. At 11.7 steam was produced; at 11.14 there was a pressure of 10 lbs. of steam; at 11.18 the pressure was 15 lbs.; at 11.19 the first copy of the Star Supplement was printed; at 11.24 there was 26 lbs. of steam; at 11.30, 35 lbs.; at 11.37 with 35 lbs. of steam the engine was throwing off 1600 copies per hour; at 11.14, when there was 10 lbs. of steam, coal was ceased to be added, and the remainder was weighed and found to be 34 lbs., so that the whole of this effect was produced in 42 minutes after the coal was lighted from 66 lbs. of fuel. The water at the beginning was cold. The coal was easily lighted, and burned with a great clear flame; the ash was small in quantity. Several blacksmiths say they can use it, but I do not consider it a good smith's coal, and do not expect it to compete with English varieties for that purpose. There is, however, one portion of the seam about 5 in. thick, which if selected and kept clean will work fairly in a forge. It will never be economically available for ocean steamers, because for that purpose fuel is required in its most condensed form; and, therefore, a coal containing 30 per cent. of ash would require too much space, and would not be sufficiently effective to propel their engines at the speed they are now driven. It is possible, however, that for coasting and steam tugs, &c., where speed is not of so much importance, and for such work where coal can be often be shipped, it may be made available, provided that it can be delivered there and sold to successfully compete with the English coals. For this purpose, when a colliery is in full work and sufficient demand can be obtained, I should propose washing all the small broken coal, which is invariably the best of the seam, and adopt the best process for making it into patent fuel; it would then by compression be made into bricks of coal, which can be readily stowed away on board, and have a larger percentage of combustible matter per cubic foot when in the bunkers than if thrown in in its ordinary state.

When so prepared it is quite possible that ocean steamers running

* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergstrat Dr. von Gumboldt, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

short of supply would coal with this if other varieties could not be obtained, and in times of war, when the difficulty of obtaining good steam coal will be increased one hundredfold, it will also be in demand. How far ship owners will use it as a mixture, by way of contracting the consumption of their remaining stock of good coal, I am unable to say, but I am of opinion that they could then use about one-fourth of this coal to considerable advantage when mixed with three-fourths of their usual quality. It is not a good house coal, because in an ordinary grate it will not kindle so easily as the better qualities, and as it contains so large a percentage of ash it would be condemned, provided that the better qualities were obtainable. Nevertheless, it burns well, throws off much heat, and gives a cheerful fire; and in a country like the Cape of Good Hope, where fuel is scarce and expensive, it would ultimately be in favour when offered at a sufficiently low rate to defy competition; and to do this I consider the average selling price in Queenstown should be 14. 15s. per ton.

With regard to the cost and mode of working these coals. Pit shafts and winding engines will not be required—indeed, it would be well as far as possible to avoid them, because almost all these coal seams, though tolerably dry in themselves, will, in my opinion, invariably have water-bearing strata above them, and after considerable openings have been made the roof and overlying strata will subside, and through the crevices made by the subsidence water—perhaps in large quantities—will flow in, rendering in such cases the addition of plant for pumping, with all its attendant expenses. Levels or headings into the sides of the mountains will always be preferable so long as a good quality of fuel can be obtained from them, because with a slight rise forward the water would flow out. For the roadways driven in the solid coal timber will not be required, but for the working places where the miners will be in some danger from falling coals it will be needed, and I estimate it will cost about 4d. per ton of coals, and is included in my calculation of the cost per ton delivered into trucks.

Probable outlay for a small colliery required to produce 50 tons per day:—

50 iron coal tubs at 100s.	£ 250 0 0
Tram rails and wooden sleepers, with nails, &c....	100 0 0
Blacksmiths' and sundry other small tools	100 0 0
Tub weighing machine	35 0 0
Ponies and gearing	40 0 0
Apparatus for washing 100 tons of coal per day....	400 0 0
Sundries	75 0 0
Total	£1000 0 0

N.B.—The length of endless chain incline not being known, it cannot be included in this estimate.

Probable cost per ton into railway trucks or wagons for a small colliery of (say) 50 tons per diem. Cost per ton underground:—

Cutting and loading, inclusive of candles, powder and fuse, &c.	£0 6 3
Driving headings, stone drifts, and other deadwork....	0 0 4
Cost of timber	0 0 4
Timbering and drawing out pitwood	0 0 2
Labour on underground roads	0 0 1
Loading rubbish and other casual underground work	0 0 2
Hauling underground	0 0 3
Overmen	0 0 6
Ostler and repairing gearing	0 0 1
Total	£0 8 2

General charges and costs per ton on surface:—

Royalty	0 0 6
Salaries—Mining engineer	0 0 5
Underviewer	0 0 5
Clerks, &c.	0 0 5
Interest and redemption of capital charged at 12 per cent. per annum	0 0 2
Carpenter, smith, striker	0 0 5
Mason (occasionally)	0 0 1
Weighing and surface hauling	0 0 3
Sorting, cleaning, & washing in favourable localities	0 0 6
Loading into trucks or wagons	0 0 6
Tub grease, wear & tear of tools, iron, steel, sundries	0 0 8
Total	£0 4 4
Total cost per ton....	£0 12 6

Supposing the Government, with a determination to avail themselves of the fuel, if possible, for railway purposes, prosecute to a successful issue the proofs already commenced, and also ascertain by a series of experiments that the coal will undoubtedly answer for colonial locomotive purposes, then I am of opinion that the following may be accepted as an approximate estimate of the result when compared with the cost upon the present system. Average cost of English locomotive steam coal when loaded up into trucks, as per information supplied by the chief resident engineer at Panmure, 3s. per ton:—

English coal free on trucks at East London	£3 0 0
Cost of Indive coal per ton	£0 12 6
Add 7s. 6d. per ton profit available for extension of plant, reserve fund, &c.	0 7 6
3000 lbs. of Indive coal will be required to perform same duty as 2000 lbs. of English ditto; therefore, add 1000 lbs. of Indive coal at 20s.	0 10 0
Cost of coal to do same duty as 1 ton of English	1 10 0= 1 10 0

Balance in favour of using Indive coal, less extra cost of delivering 3000 lbs. weight of one against 2000 lbs. of the other for the same effective results £1 10 0

Memorandum.—Against this extra cost of delivering the greater bulk it may be taken into consideration that the gradients will be downwards towards the coast for delivering Stormberg coal, and the reverse for any that is imported. Although it is disappointing to find all the coal yet discovered in the Cape Colony persistently divided by bands of shale, and accompanied by not less than 25 per cent. of ash, I am of opinion that it appears, notwithstanding these disadvantages, it may be used economically for railway purposes, owing to the great cost of imported coal, by specially constructing engines for that purpose. With regard to quality, the coal of the Dordrecht district is superior to that of the Molteno, though some of the latter is nearly equal to the best of the former. Upon this fact I have founded a theory that I think will prove to be the rule—that any workable coals will improve in quality in a north-eastern direction. Close observation convinces me that these coal seams are erratic, and not as regular either in thickness or in quality as those found in the carboniferous series of England. Therefore, no estimate must be considered to contain the coal seams all over it unless sufficient proof has been made on various sides. At the workings opened in these coals extra care will be required to keep them free from the shale and dirt; this care will render the output of the mines a valuable fuel for all steam purposes at a comparatively moderate price. It must, however, be understood that the present means of transport by bullock-wagon is in my opinion utterly unfit for the economical removal of such heavy produce, and the stores of this fuel in the Stormbergen cannot be made available until railway extension has opened up this coal field.

A vote of thanks was accorded Mr. North with acclamations, to which he responded.

HEATING AND MELTING METALS.—The fuel, according to the invention of Mr. J. T. SHERIDON, of Wolverhampton, is charged into one or more retorts, having their back ends, which are open, connected to the ordinary furnace grate. Air flues are arranged along the said air flues (in which it is heated) to flues formed around the retorts. The air on reaching the retorts is at a high temperature, and thus heats the fuel in the retorts, from which gas is consequently discharged into the furnace grate. Openings are formed from the

flues around the retorts into the furnace grate, and the hot air thus meets the gas as it is discharged from the retorts, and a thorough combustion is obtained. When as much gas as is practicable is expelled from the fuel in a retort, the fuel is pushed from the retort into the furnace grate, and fresh fuel is charged into the retort. The furnace is got up by lighting a fire in the furnace grate, and also in the retorts, air being allowed to pass into the retorts until the heat is got up. In the application of this invention to a puddling-furnace the retorts are placed at the end of the furnace grate, and in a position inclining downwards thereto. The main flue from the furnace is formed as a culvert underneath the furnace, the chimney being carried over the retorts. The productions of combustion pass from the underground flue up a vertical flue at each side of the retorts, and thence through cross flues over the arch of the retort bed into the chimney. The air flues are arranged in the bottom of the main flue underneath the furnace, and pass from thence through the back of the furnace to the flues around the retorts. In the case of puddling-furnaces having the chimney in the usual position, the air flues may surround the lower part of the chimney, and pass from thence through the back of the furnace to the flues around the retorts.

ECONOMIC MANUFACTURE OF ZINC.

THE PROFITABLE TREATMENT OF MIXED BLENDE AND GALENA ORES MADE EASY.

The zinc ores usually sold may be divided into two great classes—the sulphides and the oxides. In nature the sulphides of zinc are seldom met with alone, being almost invariably associated with the sulphides of other metals—lead, iron, copper, &c.—galena generally predominating. The separation of the two sulphides—blende and galena—can generally be pretty readily effected, owing to the difference of density, but sometimes very refractory minerals of this class are met with. As the mines of Belgium have proved inadequate to the supply of the smelting-works of the country, and also in anticipation of the exhaustion of the deposits at present being worked, and of the constantly increasing development of the industry, recourse has been had to foreign countries, and explorations have been made in France, Germany, Spain, and Italy, especially in the Island of Sardinia. In this latter country several mines which have been opened and set to work have not fulfilled the expectations entertained of them—not that they are poor, far from it; but owing to another cause not suspected—the extreme difficulty of separating the two sulphides, and this difficulty has even led to the temporary suspension of the works. It is for this reason that several veins, well defined, of good produce, laid open for a considerable length, of unusual thickness, and rich in silver, have remained unproductive. In most of them the ore is composed of blende and galena, with a little serpentine; but the two sulphides are so intimately associated that their separation has proved an insurmountable difficulty. It is very easy after fine crushing and careful classification to separate some of the galena and some of the blende; but there always remain intermediate products forming the larger part of the mixture, and which, however carefully crushed and prepared, have remained inseparable. The numerous apparatus, even the most perfect, have in turn been tried in the principal establishments (Sardo-Belge, Membach, and others); but, notwithstanding the most careful attention of the most experienced engineers, the efforts have not been crowned with success. Indeed, these intermediary products, although rich in metals, must be considered valueless, because all that can be done is to concentrate them up to about 50 or 55 per cent. of lead and zinc combined, the proportion of zinc being always greater than that of lead. Consequently, these cannot be sold as lead ores, because they contain too little of that metal, and they cannot be sold as zinc ores, because they are too poor; moreover, upon treating the mixture the presence of lead causes the breakage of too many crucibles to render the reduction profitable if the mixed ores be purchased at a price which would leave a profit upon raising them. These mixed ores are regarded in lead and zinc works much as the oligistic iron ores were formerly regarded in the blast furnace.

And these observations do not apply alone to the ores of Sardinia, for recently similar difficulty has been met with in treating Spanish plumbiferous calamine, in which the lead appears to have given rise to the formation of double silicate, which removes all hope of separation by mechanical means. The last report of the Société de la Vieille-Montagne records an analogous fact in speaking of the calamine deposits at Hammam, in Algeria, worked by that company, and minerals from various other sources present the same difficulties. Indeed, it may be said that in most cases it is only after a laborious process that even a part of the metals contained can be utilised. If the ores be rich they can to a certain point bear the cost of frequent manipulation, but it is not the less true that so large a part of the value of the mineral treated is thus consumed that very little profit remains. It should be mentioned, however, that at the Breinigerberg Mines, near Stolberg, a mixture of various sulphides has been for several years past successfully treated by first roasting them, and then subjecting them to mechanical treatment. This process has since been adopted at other mines; but this is where special circumstances exist, and where there is nothing in common with the generality of cases, as the cost of treatment is always high, without reckoning the loss inseparable from the several manipulations. Many other examples of the production of these valueless mixed minerals might be referred to, for they are but too well known in Tuscany, the Tyrol, England, Sweden, Norway, and elsewhere; but it would be useless to extend the list to show the importance of such a question, as the manufacture of zinc, which has been so long studied, and which so far as its production from mixed minerals is concerned has received so much attention during the past ten years. Zinc being a fusible and volatile metal readily oxidising in the air under both conditions, and moreover, the point of volatilisation being very close to the fusing point, it is necessary in practice to take the greatest care to prevent loss. The reduction of zinc ores, then, to the state of oxide if they be sulphuretted must be carried on out of contact with air—that is to say, in a closed vessel. Two kinds of reduction processes have been put in practice—the one *per ascensum*, the other *per descensum*; the latter, formerly used in Carinthia, has been abandoned, or but little extended, so that at present the former is alone in operation. In the process *per ascensum* there are two systems of furnace in use—the Belgian and the Silesian—which differ from each other only in the form and number of the retorts used.

Appreciating the advantage which would result from the direct treatment of zinc ores as compared with their reduction in retorts, Messrs. Lencauchez and Müller, in 1860, constructed a blast-furnace for the direct treatment of Belgian ores of little value (worth about 5 fr. per ton, and containing 30 per cent. of iron and from 15 to 20 per cent. of zinc); but as these minerals became unobtainable the treatment of richer minerals gave but unsatisfactory results, because they could only be made to yield zinc grey or zinc dust. There was, indeed, nothing very surprising in this, considering the avidity with which zinc combines with oxygen, and the impracticability of preventing the admission of air into the blast-furnace. It was finally concluded that the treatment of zinc ores in the blast-furnace was not practicable; though this has not prevented attempts being made for some years past in America to revive the idea—the inventor sought to reduce the zinc from the ore, then to oxidise it, and pass the oxide resulting over a bed of highly-heated fuel so as to reduce it, and be enabled to run the condensed metal out of the furnace. The process was not successful. Before this new process had come to the knowledge of Messrs. Binon and Grandfils,* they had been making experiments with the same object, but in a different manner. After having long studied what could be done with these mixed minerals they arrived at the conclusion that, the produce of zinc being small and the produce of lead being also small, it was necessary, in order to treat them to advantage, to extract at one and the same operation the two metals which they contained. This problem being thus put they conceived the idea of a rever-

beratory furnace, rectangular in form, with two working doors opposite to each other on the short faces of the furnace, whilst the hearth was on one of the long faces, and the escape of gas takes place through two flues on the other face. Each flue was continued into a square chimney, closed at the upper part and divided, by a refractory partition extending upward a certain distance, into two compartments, one of which, forming the immediate continuation of the flues, is intended for receiving coke to the height of two or three metres, the other intended to remain empty. The gas passing from the furnace through the two flues had to rise through the coke in order to descend the adjacent compartment, and thus reach the chimney. The furnace being thus arranged the intention of Messrs. Binon and Grandfils was to charge on to the sole of the reverberatory furnace heated by a flame, rather reducing than oxidising, a mixture of the roasted mixed minerals with a pretty large proportion of coal to reduce the oxides. The zinc once reduced and under the high temperature of the furnace ought to volatilise; but in the presence of the excess of air and of the carbonic acid coming from the products of combustion is transformed into oxide of zinc, which, carried onward with the gas from the hearth, can be reduced as well as the other oxidising agents whilst passing through the columns of coke, and deposited in the metallic state in the neighbouring compartment. In this manner, the zinc being isolated from the mixture and reduced after oxidation, the two metals are obtained at the same operation, for the lead will be found molten on the sole of the furnace.

In the course of their trials they took a tube of refractory earth, about 1 metre high and 15 to 16 centimetres internal diameter, the bottom of which was closed and furnished towards the top and bottom with two small necks; the lower of these was joined to a large laboratory muffin, and the upper was furnished with a sheet-iron lengthening piece, intended to serve as a condenser for the zinc. The tube ought to have been entirely exposed to the fire (but this was not done, owing to the neglect of the workman), and at the upper part, going a little beyond the tunnel of the little furnace which they arranged for the purpose, another tube 1½ metre high—this latter being of sheet-iron, and well luted to the former. Having filled with broken coke this column of nearly 3 metres in height, and closed the top of the upper tube with a sheet-iron cover, in order to make the gas pass through the lengthening piece, they applied heat for several hours, in order that the coke might be thoroughly dried; then taking metallic zinc they placed it in little cups to introduce them into the muffin; they produced by burning it oxide of zinc, which they endeavoured to reduce by passing it through the refractory tube filled with heated coke; they, however, made several trials, but always without result. Whatever precautions were taken the oxide of zinc went off as soon as produced, and it was found impossible to retain it. And, finally, they were thoroughly convinced that the industrial solution of the question of treating mixed minerals was not to be found in the process which they had elaborated, and that the principle upon which they based it was not applicable. They then turned their attention to Farnham Maxwell's process for their treatment by the wet way. He treats the hot roasted mineral with chloric-hydride, so as to get the zinc, lead, and silver in solution, in order to precipitate the two latter in the metallic state by means of zinc. He thus obtains a solution containing only zinc, which is in turn precipitated in the state of oxide by lime, which gives a pure zinc mineral, the lead and silver having been eliminated. But the practical question is to know the price at which these reactions can be produced; and Messrs. Binon and Grandfils show that 45 fr. worth of zinc are consumed to obtain 40 fr. worth of lead, and all to obtain two distinct treatable products—so that this must be added to the cost of subsequent fusion and reduction without considering that of producing the reactions indicated. And they doubt whether, even when the mixed minerals contain zinc, lead, and silver, there would be any profit, without calculating upon receiving them at a price at which they could scarcely hope to produce them. And when the mixed minerals contain copper the process is still more complicated, as alternate sulphatation and chlorination have to be resorted to. Seeing that none of the processes tested offered much chance of success they tried to utilise a little furnace which one of them had designed for the treatment of argentiferous skimmings obtained in leadworks by the desilverisation of lead with zinc, and consisting of a large number of muffins, inclined so as to run out the argentiferous lead towards one face of the furnace, and condense the zinc at the other face. But the fear of breaking too many pots made them hesitate. When speaking to Mr. Alphonse Fétis, the managing director of the Rhine and Nassau Mines and Smelting Works, as to what they had done at Membach, he expressed the opinion that in zinc furnaces a real and important progress would be made if it could be arranged to charge them through the roof, and to discharge them in as simple a manner as possible. After a few trials they arrived at the furnace which will now be described.

[To be concluded in next week's Journal.]

THE SEDIMENTARY FORMATIONS OF NEW SOUTH WALES

In connection with the geological literature of New South Wales few names are more widely and honourably known than that of the late Rev. W. B. CLARKE, a new edition of whose *Remarks on the Sedimentary Formations of New South Wales* (Sydney: Thomas Richards, London: Trübner and Co.) has just been issued. The introductory notice to this fourth edition was written June 2, of the present year, and is signed "W. B. C." (quo die octogenarius), since which the much respected author has passed away. It will be remembered that the first edition of the work was prepared for the Paris Exhibition of 1867, and in each succeeding edition much new and interesting information has been added. The map of Australia shows that the coasts of Victoria, New South Wales, and Queensland follow the general directions (with some irregularity) of the Cordillera, or elevated land separating the waters flowing directly to the coast from those which draining the interior disembogue to the south-west. The Murray receives some parts of its tributaries from the high lands of Victoria, and others from New South Wales; whilst the Darling and its tributaries collect the remainder of the supply from as far north as 25° south latitude. The Cordillera thus sweeps round in an irregular curve from west to east to the head of the Murray, and thence northerly and north-easterly to the head of the Condamine, trending north-westerly from that point to 21° south, whence it strikes to the north, terminating its course at Cape Melville, in 10° south, about the meridian of Mount Alexander, in Victoria. The more westerly and southerly trend of drainage is represented by the Thomson and Barco rivers, which carry off the waters of the Cordillera at the back of the Barrier Ranges to Spencer's Gulf. Strzelecki in 1845 traced the Cordillera from the southern point of Tasmania to the parallel of 28° in long. 152°, but not further westward than 146° on the parallel of Mount Alexander. But it is doubtful whether the range between this furthest western point and Wilson's promontory, where he considers the chain to be cut off by the sea, forms anything more than a spur in that direction, though passing through Bass's Strait on to Tasmania. But the extent of the Cordillera westerly to its termination on the border of South Australia is so well defined that there can be no question that the south-western and western extension has as true a character as any part of the northern prolongation. The boundary line separating Victoria from New South Wales crosses very near the highest point of all Australia. The highest point of Kosciusko is found by the more accurate observations of Clarke and Neumayer to be 7175 ft. (not 6500 ft. as Strzelecki calculated) above the sea.

Thus all the enormous drainage of western New South Wales and south-western Queensland is, at it were, bounded by ranges of high geological antiquity, the Grey and Barrier groups being of undoubted similar age to the mass of the eastern Cordillera. It has long been known that the strike of the oldest sedimentary rocks through the Cordillera in Victoria as well as in New South Wales is generally meridional, so that in the former province the beds strike across the Cordillera, whilst in the latter they form various angles from parallelism with it to a transverse direction, as the chain doubles and winds irregularly in its course. It sometimes happens that owing to the high angle of dip and the effect of denudation on the over-

* Etude sur l'Amélioration des Procédés de Fabrication du Zinc. Par Jos. BINON, Ing. civ. à la Société des Mines du Rhin, &c., à Stolberg, et ALPHONSE GRANDFELS, directeur des Usines des Membach. Liège: Vaillant-Carmanne, Rue St. Adalbert.

lying formations, the Cordillera itself becomes in places almost knife edged, so that in New South Wales it presents occasionally a watershed not more than nine paces in width, whilst in Manero to the south and in New England in the north it spreads out into a plateau, on which eastern and western waters rise close together, and sometimes overlap. It might naturally be assumed that one order of deposits is to be expected throughout the Cordillera, but there is a singular exception. Whilst marine deposits of tertiary age are found along the west coast of Australia and along the southern coast from Cape Leeuwin to Cape Howe, there are no known marine tertiary in any part of the coast of New South Wales and Queensland up to the Cape York peninsula, and the reason of this may be that, as indicated by phenomena before pointed out by Mr. Clarke, the eastern extension of Australia has been probably cut off by a general sinking, in accordance with the Barrier Reef theory of Mr. Darwin. This has some support from the fact that there is a repetition of the Australian formations in the Louisiade archipelago, New Caledonia, and New Zealand, in the latter of which occur abundant tertiary deposits. The intervening ocean may, therefore, be supposed to cover either a great synclinal depression or a denuded series of folds, but, as shown in 1874 by H.M.S. Challenger, this depression is of enormous depth, 2625 fathoms having in one sounding been reached. Relatively speaking, then, the Cordillera of the eastern coast has not been subject to the changes which introduced the relics of a tertiary ocean, or they have been removed by subsequent sinking and denudation.

Very interesting chapters are given on the Azoi or metamorphic rocks, on the lower palaeozoic rocks—the lower and upper silurian, on the middle palaeozoic rocks, on the mesozoic or secondary formations, and on the tertiary rocks; and in these the whole question of the age of the New South Wales coal deposits is fully and carefully discussed, and there can be no question that in dealing with the subject Mr. Clarke has been much more desirous of adhering closely to logical deductions than many of his opponents have shown themselves to be. The whole subject is well worthy of being fairly discussed (for most that has already been said and written has been insufficiently supported by observed facts, which have been ascertained by absolute exploration and research), and the necessary data for the discussion cannot be more readily obtained than from the perusal of Mr. Clarke's volume.

MECHANICS OF ENGINEERING.

The reliable character of Prof. Weisbach's treatises on mechanics has long been known to engineers, and the publication of a thoroughly good English translation will certainly cause the study of it to become more general, more especially as copious annotations have been introduced, giving details of American practice in connection with the matters treated of. The second part of the second volume, treating of Heat, Steam, and Steam-Engines has just been issued, and leaves nothing to desire. There still remains to be translated the third volume, which completes the course, and which in connection with the other two will furnish technical schools and colleges with a full and thorough mechanical course, well adapted to the wants of students. The entire work has been thoroughly revised, and much has been entirely rewritten, by Prof. Gustav Hermann, of the Royal Polytechnic School of Aix-la-Chapelle, so that when complete all information on the subject will be brought down to the latest and most approved practice.

The present section occupies 560 pages, and has about 500 engravings in the text; it is divided into four chapters. In that on the properties of heat all requisite information is given on the work of vibration, heat conduction, expansion, heat capacity, specific heat of gases, Poisson's law, mechanical equivalent of heat, latent heat, and so on. In the chapter on Steam there are sections on the expansive force and temperature of steam, experiments on the expansive force of steam and the results of these experiments, expansive force and density of vapours in general, and on other cognate matters. The next chapter treats on steam generating apparatus, and refers amongst other things to the different forms of steam-boilers, heating surface, water and steam space, thickness of boiler sides, rivet connections, combustion of smoke, heating by gas, feed apparatus, and safety-valves. And, lastly, the chapter on the steam-engine treats of the expansion and condensation of steam, valve gear, law of motion of the crank, eccentric with variable expansion, expansion slides, Corliss engine, Woolf engine, work of steam without expansion, expansion in two cylinders, exponential law of expansion, application of mechanical theory of heat, indicator diagrams, piston friction, principle of the hot-air engines, gas engines, and various other matters bearing on the question. The work throughout is admirably translated, and as to the completeness and utility of the information given it is sufficient to say that nothing has been omitted though much has been added to Weisbach's original treatise.

NEW SUBSTITUTES FOR GOLD AND SILVER—APHTHITE AND SIDERAPHTHITE.

Some very beautiful alloys applicable as substitutes for gold and silver in the manufacture of jewellery and similar purposes have been produced by Messrs. MEYER and Co., of Marseilles. To make an alloy having the appearance and colour of gold they place in a crucible copper as pure as possible, platinum, and tungstic acid in the proportions below stated, and when the metals are completely melted they stir and granulate them by running them into water containing 500 grammes of slaked lime and 500 grammes of carbonate of potash for every cubic meter of water. This mixture dissolved in water has the property of rendering the alloy still purer. They then collect the granulated metal, dry it, and after having remelted in a crucible they add a certain quantity of fine gold in the proportion herein-after specified. An alloy is thus produced, which, when run into ingots, presents the appearance of red gold of the standard 750-1000, and to which may be applied the name of "aphthite," or unalterable. They can change the colour of the alloy by varying the proportions of the different metals. As flux they use boric acid, nitrate of soda, and chloride of sodium previously melted together in equal proportions. The proportion of flux to be employed is 25 grammes per kilogramme of the alloy. The proportions they employ, by preference, for producing an alloy of red gold colour are—copper, 800 grammes; platinum, 25; tungstic acid, 10; and gold, 170 grammes.

The alloy used in imitation of silver consists of iron, 65 parts; nickel, 23 parts; tungsten, 4 parts; aluminum, 5 parts; and copper, 5 parts. The iron and tungsten are melted together, and then granulated, as in the case of the previous alloy, except that in this instance the water into which the mixture is run contains one kilogramme of slaked lime and one kilogramme of carbonate of potash per cubic metre. The nickel, copper, and aluminum are also melted together and granulated by running into water containing the same proportion of lime and potash. Care should be taken during the melting to cover the metals contained in the two crucibles with a flux composed of one part of boric acid to one part of nitrate of potash or nitre. In the crucible containing the aluminum and copper they place a lump of sodium of about two grammes in weight when treating five kilogrammes of the three metals (nickel, copper, and aluminum) together to prevent oxidation of the aluminum, and they also add charcoal to prevent oxidation of the copper. Before granulating the metal in each crucible it should be well stirred with a fire-clay stirrer.

The granulated metals are dried, as in the former case, then melted together in the same crucible in the proportions above indicated, and well stirred, after which the alloy is run into ingots. The alloy thus obtained, to which may be given the name of "sideraphthite" (or unchangeable iron) presents the same white appearance as platinum or silver, and is not more expensive than German silver. These improved metallic alloys are capable of resisting the action of

sulphuretted hydrogen, are unattacked by vegetable acids, and but slightly attacked by mineral acids; they are also perfectly ductile and malleable.

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week there has been no improvement in confidence, and, therefore, with little inclination on the part of buyers to operate, the general tendency of prices has been unfavourable. The selling or lowering of prices in unsuccessful endeavours to sell in many cases of a forced character, and that is a state of affairs which cannot last very long. It is universally recognised that this is a good opportunity for parties to buy who have the money ready, and it is believed that such buyers will gradually take the place of the weaker holders of securities, and after a time it will be found that the market will thus be strengthened, confidence will arise, and a recovery become certain. The extent of the recovery will depend upon the condition and prospects of trade at the same time, but after the clearing of unsound concerns now being made, no apprehension need be felt that trade will not become sound and good.

In shares of coal and iron concerns, Scottish Australian (new) are raised 3s. 6d., and Glasgow Port Washington 2s. 6d.; but Benhar and Bolekow, Vaughan, A., are both reduced 1s. 10s., Bolew Vale and Shotts both 1s., also Marbella and Scottish Australian both 2s. 6d. The principal dealings have been in Benhar, which have fluctuated between 2s. and 4s. 6d., and it is supposed they are being realised by parties at the head of affairs, who will have to come forward with the necessary funds to meet the debenture bonds falling due at Martinmas next, or there will be little chance of arranging the debt. A meeting of the Chatterley Company is to be held to-morrow to receive a statement of the position and prospects. It appears the ordinary capital has been expended, and it will either be necessary to raise more to meet the liabilities till trade improves, or wind-up. The half-yearly meeting of the Scottish Australian is to be held on Oct. 30, and the report to June 30 shows a net profit of 18,468s. A dividend of 15 per cent. is proposed, payable Nov. 7, to add 3500s. to the reserve, making it 21,000s., and to carry forward 2968s., against 2254s. brought in. The total sales were 99,485 tons, and the sales for August last were 21,265 tons. Bolekow are 2s. 6d., Bolekow, Vaughan, A., 5s. 5s. 1/2, and ditto, B. 5s. 1/2. Brown, Bayley, and Dixon, 6s. 1/2. C. Cammell and Co., 10s. 1/2. Cardiff and Swanssea 25s. Chatterley 23s. 6d. Chillingham, 60s. to 65s. Ebbw Vale, 5s. 1/2 to 6s. Great Western, 45s.; ditto (pref.), 90s.; and ditto (debentures), 62s. John Brown and Co., 13s. 6d. Nant-y-Glo and Blaenau (pref.), 18s. to 20s. Newport Abercrombie, 90s. Rhymney, 14s. Sheepbridge 27s. 1/2. South Wales, 70s. Staveley, A., 5s. 1/2 prem.; ditto, B., 40s. prem.; and ditto, C., 6s. Tredgar, A., 10s. 1/2; West Moystyn (pref.), 20s.

In shares of foreign copper concerns, Tharsis old shares are raised 1/2, while the new shares are 1 1/2 lower. Cape are 2s. and Huntington 6s., both also lower. The sales for the week, the prices varying only from 21s. to 21s. 1/2. It is announced that the second half of the dividend of 17s. per cent., declared from the profits of 1877, will be paid on those shares on Nov. 8. This dividend amounts to 17. 6d. on the 10s. shares, and 12s. 3d. on the 7s. paid issue. The annual meeting of the Panullico Company is on Nov. 1, and the report to June 30 shows a loss of 3433s., the greater part of which was made in the first six months. Since then considerable economies have been inaugurated in the smelting expenditure, and the reserves in sight are estimated at two years' consumption. The debenture debt stands at 45,000s. The usual monthly advances from Yorke Peninsula for 1877, show a decrease of 17s. 6d. In August a decrease of 10,000s. of 19 per cent. have been shipped, and there were on hand 171 tons of 17 per cent. and 800 tons of dredge ore of about 8 per cent. Rio Tinto 5 per cent. are at 66s. 1/2; Yorke Peninsula, 3s. 9d. to 5s.

In shares of home mines the rise of 2s. per ton in tin has made shares in some of the leading mines more marketable, such as South Condorrud, South Frances, Dolcoath, Tincroft, North Busy, and a few others, but most of the others continue to be freely offered, the prospects of calls keeping back buyers. Shares of the principal lead and copper mines are unmarketable. At the Prince of Wales Mine the only hope now is in the silver-lead. The continued decline in Great Laxey is attracting attention, as if anything goes wrong with the leading Maxx mine it means people will not care to touch any other sett in the island on fair terms. The sale of the Glasgow Caradon Company on the 17th inst., computed 200 tons copper ore, realised 877s. 16s., or an average of fully 87s. 9d. per ton, and compares with the same quantity at 84s. 1d. last month, while the October sales for some years back have been—In 1877, 235 tons, at 77s.; in 1878, 245 tons, at 90s. 10d.; in 1879, 245 tons, at 112s. 9d.; in 1880, 245 tons, at 102s. 1d.; and in 1873, 308 tons at 99s. 5d. This is the company's tenth sale for the current financial year, and the total proceeds of these sales, as compared with the sales in the corresponding period of 1877, show a decrease of 17s. 6d. In August a decrease of 10,000s. of 19 per cent. have been shipped, and there were on hand 171 tons of 17 per cent. and 800 tons of dredge ore of about 8 per cent. Rio Tinto 5 per cent. are at 66s. 1/2; Yorke Peninsula, 3s. 9d. to 5s.

In shares of gold and silver mines, Richmond are unaltered, and have sold from 9s. 11s. 3d. to 10s. during the week. Colorado United gradually fell to 42s. 6d., but are slightly firmer now, and at anything under 21s. might do to buy. Little business has been done in the whole of the week, and the closing of the share list is only part of an arrangement previously made, and after this week none are to be issued except at 2s. prem. As the new shares are only entitled to coupons it is by no means impossible that they may be eventually subscribed by people in the country or foreigners, who are all fond of anything that looks like a lottery. The half-yearly meeting of the Javall Company will be on Oct. 28, and the report to June 30 shows that 11,163 tons of ore had been treated, producing 9300s., against 8795 tons and 6402s. In the corresponding period of 1877. After meeting interest on debentures it is estimated that a clear profit of 1300s. will be made, and this encourages the directors to hope to begin reducing the debenture debt soon, but nothing will be attempted in the meantime as regards the preference shares, interest on which is accumulative. The meeting of the United Mexican Company is to be on Nov. 6. Santa Barbara and New Zealand Kapanga are better on good accounts from these mines, also Pitangul. Notwithstanding considerable expenditure on improvements at both mines, the profits in September at Sierra Buttes of 31,769 and at Pumas Eureka of 319,939 are very good. Port Phillip shares are now quoted ex div., and the profit for the month ended August 14 has been 182s., and for the month ended 9 130s. It is difficult to understand why such prospectus issues are being predicted from a new mine—the Leabelle. From a prospectus issued in June all the information possessed about it simply was that some people the directors knew had inspected it, and said it was a promising investment. Eberhardt are at 80s. Emma, 2s. Flagstaff, 8s. 9d. I.X.L., 2s. 6d. to 6s. St. John del Rey, 280. South Aurora, 2s. 6d. to 5s. Teooma, 3s. United Mexican, 92s. 6d.

In shares of oil companies, Uphalls have declined 12s. 6d. and Young's Paraffin 6s. 3d. The latter shares have been sold at 13s. 1/2, but at one time were worth 13s. 16s. 3d. In shares of miscellaneous companies there is little doing. Native Guano are 75s. Palmolive, B. 12s. 6d., and Phospho 10s. 9d. to 11s. 6d. In new share companies shares are quiet. There has been a great fire at the works of the Gloucester Company, and most of their sheds are burnt. It is said they are fully insured, but operations no doubt will be much curtailed for some time. Bristol and South Wales are at 7s. 1/2. Swansea, 30s. In chemical companies shares prices are—Law's, 8s. 1/2 to 9s. Langdale's, 8s. 6d. Newcastle, 43s. 9d., and Northern Agricultural, 10s. 1/2 to 11s.

A CORRECTION.—In last week's report by some mistake a sentence referring to the Huntington Copper and Sulphur Company (Limited) as follows: "The effort recently made to stop the action by the shareholders of this company against the directors and promoters has apparently been in vain, as no action against them has just been served upon each of them for the sum of 150,000s., on the grounds that the company was floated by means of false and fraudulent representations," was placed so as to refer to the Tharsis Sulphur and Copper Company (Limited). Of course anyone aware of the deservedly high standing of the Tharsis Company might at first be surprised to have read this, but afterwards could hardly fail to perceive it was some mistake, yet we regret none the less such an unintentional blunder should have occurred, especially regarding a concern about which we have on many occasions written so favourably.

MINING PROPERTIES.—The purchase and sale of these properties has quite come to a stop owing to the disorganised state of financial and commercial matters, but sound and valuable sets can now be had at such low prices that this department of business is considered likely to improve soon. The sets in the D'Eresby Mountain district are all being picked up, but it is said a very valuable one, where work has been done, and a mine could be opened up at once with a small outlay, is to be introduced shortly, when fuller particulars of it will be given.

MINING IN FLINTSHIRE.—The Prince Patrick Mine, which is beginning to attract attention, paid annual dividends of 25 per cent. up to January, 1876. After that, in consequence of the lode being thrown or heaved, it was lost for nearly 18 months, and has just been discovered again very rich to the north of the workings, and from all that can be seen it promises to be more productive than ever it was. The last monthly report, given in the Journal of Oct. 12, fully referred to this, and by later information the lode in the 50 north continues to hold good, and never looks better. The mine is, indeed, steadily improving. Independent of this discovery they have three other points of great promise, which when reached will considerably enhance the value of the mine, and the least improvement in the price of lead ore will, no doubt, send the shares up from their present low price of 25s. to what they were two years ago—70s. to 80s. each. Investors should secure an interest before the rise takes place. At the Rhyl Alum Mine there is nothing new; here it will be remembered the sales from the new lode above water level have increased from 12 to 40 tons last month. Deep Level Mine continues to look very encouraging. The recent discovery in the Drainage tunnel of ore, continuous for 70 yards, and worth in places from 2s. 1/2 to 3s. per fathom, is making these shares very hard to buy. The feed of water tapped is now sufficient to fill a 4 in. pipe, and increasing.

CLEMENTINA.—The opinions on this mine are contrary. It is pointed out no faith can be put in any mine in the district, as they never come to anything good. On the other hand, some are more sanguine, believing that the gorse lode, which was assigned as the cause of a great rise in D'Eresby Mountain shares, is in this sett, and a course of ore of something like 4 tons per fathom, left by the old workers, can be opened upon as soon as the new large wheel is erected, and the 15 ft. below deep adit drained. The promotion and management are apparently right enough; but as regards the working capital, that is less known about.

CHEMICAL COMPANIES.—It is said that parties are being induced to start chemical works in West Cornwall by questionable representations. There certainly are large quantities of ore burnt in that part of the country which would be capital material for cer-

tain departments of the business; but as for bones, &c., there are many grinders scattered here and there, so that although regularly collected in the most populous parts, there would not be one-fifth of the material got together even for one work, and consequently materials require to be largely imported. But there are already several companies, such as the West of England Bone and Manure Company, at Penryn, which has been established a quarter of a century, besides several others of later growth. The statements regarding the early vegetable trade are incorrect, as the fertilisers used are seaweed and guano, though the whole of this trade is quite unimportant. In no place in England is manure sold so cheaply as in West Cornwall, on account of the immense competition. The London makers can send it down to the various seaports and creeks as cheaply as the local makers, for the freight in no case exceeds 5s. per ton. In these circumstances it is impossible to see how such an enterprise can succeed.

Subjoined are this week's quotations, &c., of mining and metal shares quoted on the Scotch Stock Exchanges:—

Capital.	Dividends.	Rate per cent.	Description of shares.	Last Price.
Per share.	Paid up.	Previous.	Last.	
10	10	2 7	Arnstons Coal (Iron, Steel, & Co. (Lim.)	7 1/2
10	10	4	Benhar Coal (Limited)	52s. 6d.
100	50	22s. 6d.	Bolekow, Vaughan, and Co. (Lim.)	53s. 1/2
10	10	10	Calcutta Gas Coal (Limited)	8 1/2
10	10	4s. 1/2	Chillingham Iron (Limited)	65s.
10	7	10	Clyde Coal (Limited)	7
25	10	10s. 1/2	Dec. 1874, Vale Steel, Iron, and Coal (Lim.)	6
10	10	10	Fife Coal (Limited)	70s. 6d.
10	10	10	Glasgow Port Washington Iron & Coal (L)	70s. 6d.
10	10	10	Ditto Prepaid	40s.
10	10	10	Lochore and Capelrae (Limited)	40s.
10	10	10	Marbella Iron Ore (Limited)	37s. 6d.
10	10	10	Monkland Iron and Coal (Limited)	37s. 6d.
10	10	10	Ditto Guaranteed Preference	60s.
100	100	10	Nant-y-Glo & Blaenau Ironworks pref. (L)	20
10	6	10	Omoo and Cleland Iron & Coal (L. & Red.)	7s. 6d.
1	1	15	Scottish Australian Mining (Limited)	35s.
1	1	10s.	Ditto New	13s. 9d.
Stock	100	10	Shotts Iron	8s.
10	4	7 1/2	Canadian Copper and Sulphur (Lim.)	5s.
10	1	7 1/2	Cape Copper (Limited)	5s.
10	7	7 1/2	Glasgow Caradon Copper Mining (Lim.)	20s.
1	15s.	7 1/2	Ditto New	12s. 6d.
10	9 1/2	10	Huntington Copper and Sulphur (Lim.)	10s.
4	4	10	Panullico Copper (Limited)	20s.
10	10	6 1/2	Rio Tinto (Limited)	65s.
20	20	7	Ditto 7 per cent. Mortgage Bonds	14 1/2
100	100	5	Do. 8 p.c. Mor. Deb. (Sp. Con. Bds.)	91
10	10	22 1/2	Tharsis Copper and Sulphur (Limited)	21 1/2
10	7	22 1/2	Ditto New	14
1	1	1	Yorke Peninsula Mining (Limited)	14
1	1	1	Ditto, 15 per cent. Guaranteed Pref.	17s. 6d.
1	1	1	Australian Mines Investment (Limited)	8s.
1	1	1	Richmond Mining (Limited)	9 1/2
10	7	6	Dalmeney Oil (Limited)	8 1/2
1	1	7 1/2	Oakbank Oil (Limited)	40s.
1	5s.	25	Ditto	11s.
10	10	7 1/2	Uphall Mineral Oil (Limited) "A"	9 1/2
10	10	10	Ditto "B" Deferred	10
10	10	10	West Calder Oil (Limited)	16s.
10	8 1/2	17 1/2	Young's Paraffin Light & Mineral Oil (L)	13s. 9d.
50	25	5	London and Glasgow Engineering & Iron Shipbuilding (Limited)	22 1/2
7	7	15	Phospho Guano (Limited)	9 1/2
10	10	6	Scottish Wagon (Limited)	10s.
10	4	6	Ditto New	11s. 6d.

NOTE.—The above lists of mines and auxiliary associations are as full as can be ascertained, Scotch companies only being inserted, or those in which Scotch investors are interested. In the event of any being omitted, and parties desiring a quotation for them and such information as can be ascertained from time to time to be inserted in these lists, they will be good enough to communicate the name of the company, with any other particulars as full as possible.

J. GRANT MACLEAY, Stock and Share Broker.

Post Office Buildings, Stirling, October 24.

THE PORTER-ALLEN ENGINE.

For nearly 20 years the Porter-Allen engine has enjoyed a high reputation in the United States, and many of them have been successfully adopted in this country, but they are certainly not so well known here as they deserve to be. The invention is due to Mr. JOHN T. ALLEN, of New York, and the manufacture of them is in the hands of Mr. CHARLES T. PORTER, of Newark, New Jersey. The importance of the invention consists in an improved system of valves and valve gear, perfectly adaptable to high piston speeds in engines with a moderate length of stroke. To introduce the Allen and Porter engine was no easy matter at the time, for it was necessary to upset the notions generally entertained at the time with regard to the speed of engines, and to prove that Mr. Allen had actually produced what all engineers regarded as impossible—a successful high-speed engine.

It is difficult for an engineer brought up in the present school, and accustomed to deal habitually with machinery running at speeds once deemed impracticable, to realise how many and how difficult were the problems to be solved before such an engine could be produced. Many of the obstacles were entirely unknown, and were only discovered when the attempt had been made. Balancing, lubrication, and wear in turn made themselves felt as almost insurmountable obstacles to the success of the attempt. The problem of a high-speed engine—never for a moment abandoned—was at last solved. The workmanship was beautiful certainly; nothing equal to it had ever been put upon the American market. Perhaps the most remarkable feature of this engine was that even the early productions have "stood up to their work" with a durability and exemption from the accidents of use only equaled by the slow-moving beam engine, which tradition says never wears out.

As to the durability of the engine there can be no question, for in overhauling one of them last summer, after it had been at work for seven years, the engineer remarked that there was nothing to be done to it. There had in that time been no expenditure for repairs of any kind. At first glance it seems strange that an engine using high pressures and running at speeds not often exceeded by locomotives, should run for years without perceptible signs of wear, but when the sizes of the bearings, the pressures put upon them, and the speeds at which they move are all computed the wonder ceases. This system of high-speed engines has special interest from the peculiar adaptability it has to the wants of the iron and steel industries. The Edgar Thomson Steelworks have had one of these engines in constant use for two years and a half, driving a cold saw for cutting off rails. It is 11-in. bore and 20-in. stroke, and makes 225 revolutions per minute.

Its work has been in that time perfectly satisfactory, which is as high praise as could well be given. Two more are running in the new merchant mill of the Albany and Rensselaer Iron and Steel Company, at Troy, New York. One of these, with a 22-in. by 30-in. cylinder, is driving a 16-in. train direct. The other, which has an 18-in. by 30-in. cylinder, is driving a 9-in. train by a belt. The revolutions are as one to two. The speed of the larger engine is, of course, limited by the speed of the train, which varies according to the character of work from 60 to 115 revolutions per minute. In the smaller engine the revolutions run from a minimum of 84 per minute up to 225. At the latter rate the piston speed amounts to no less than 1125 ft. per minute. We should feel that it was perfectly safe to maintain the latter number constantly as the regular working speed. A Porter-Allen engine is just starting at the Gautier Steel Company, in their new mill at Johnstown, Pa. The cylinder is 13 in. by 24, and the engine will run 250 revolutions per minute, driving a 10-in. train direct.

The Allen valve gear is generally considered to be one of the most perfect arrangements for the distribution of steam that has ever been applied to the steam-engine. It is capable of working at any speed up to the highest to which it may ever be necessary to run an engine, and it is perfectly positive in its motion. The valves are not allowed to fall or close by the action of a spring or gravity, but are always held fast upon their stems. If Mr. Allen had never produced any other invention, this alone would be sufficient to place him among the foremost inventors of his time. As the valve motion came from his hand it was practically perfect, and there seems to be no need nor possibility for improvement, since it does all that the engineer desires. The advantage of high speed in steam-engines is not as generally appreciated as it could be wished. Everyone understands that in the olden time when 12 or 14 lbs. was the greatest boiler pressure that we dared to carry engines of even

moderate power were of enormous size. Just as pressures were increased the size of the engine diminished. If to-day our ocean steamers were obliged to go back to the moderate pressures of 30 years ago their engines would develop less than one-third of their present power. Now, if we can double or treble the speed of an engine we can, as in doubling pressure, at a single step obtain the same power with an engine of one-half or one-third the size. This advantage is a very great one in every way. Foundations, engine, and engine-house are all smaller and cheaper, and where an engine is to be sent to a great distance the saving in cost of transportation makes a heavy percentage in favour of the lighter and more powerful machine.

Among the features which contribute to the success of the Allen and Porter engine are the positive movements of the valves, their working equilibrium both of pressure and current, while steam and exhaust valves are driven independently. The steam-valves have their movements controlled by the governor, but the exhaust is fixed. The piston speed is from 700 to 900 ft. per minute, and, as we have seen, is in exceptional cases above 1100. The blow which the sudden admission of steam strikes upon the piston, and through the piston and connecting rods upon the crank pin, is cushioned by putting in reciprocating part of such weight that the steam expands a portion of its force in starting them in motion. Once in motion their momentum is utilised in keeping up the turning force upon the crank when the steam by expansion is losing its force. Familiar illustrations of the smooth running of high speed engines with heavy reciprocating parts are to be found in locomotive and propeller engines. In the locomotive, especially those with three or more pairs of wheels coupled, the reciprocating weight is exceedingly heavy, yet they run with great steadiness and smoothness of motion, and the same is true of propeller engines. It is an easy problem to compute the weight of parts required to give an engine perfect steadiness and smoothness of rotation at any number of revolutions per minute. The workmanship of these engines is excellent, and the governor which controls the point of cut-off is of the well-known Porter pattern. There is no form of governor so extensively used in England and on the Continent as this; indeed, its use may be said to be almost universal. It is extremely sensitive, and has complete control of the engine.

Original Correspondence.

NEW QUEBRADA MINE.

SIR.—An impression is becoming current that under the new management this mine is taking an entirely new and improved position. It is evident from the mine reports, for the publication of which we have to thank the new board, that instead of irregular lots of mixed, and in great part useless, stuff regular supplies of good ore of full paying quality, running as I have seen from 11 to 18 per cent., are coming forward, but it is difficult for an outsider to estimate the precise value of these shipments. We were informed some time back that a satisfactory traffic arrangement had been come to with the railway company, whereby the onerous engagements of a bygone period had been set aside, or at least suspended. It is evident that the prospects of the present shareholders depend upon this new arrangement being faithfully carried out, and without in any way wishing to press the new board for minute information upon details, I think it would be for the advantage of all concerned if we were told how matters are progressing. The shares are now standing at a merely nominal price. If the position of the mine is no better than it is, the sooner we know it the better; if it is really improved, it is only right that all should know it, so as to prevent an uninformed shareholder sacrificing his shares to some one behind the scenes better informed than himself. I wish, therefore, to suggest to the board that they should inform us whether the mine is fulfilling its obligations to the railway company under the existing traffic arrangement, and it might further be in their power to tell us whether any steps have been taken to make a new arrangement for next year, for which it seems to me the time has now come.

London, Oct. 25.

A SHAREHOLDER.

FLAGSTAFF COMPANY.

SIR.—A circular was forwarded yesterday to some of the debenture-holders of the Flagstaff Company, bearing the signature of F. W. Snell, of 1, George-yard, Mansion House, which contains such extraordinary statements as will, no doubt, call forth due reply from those against whom his animadversions are aimed. Having been personally mentioned as present with others at a late meeting of debenture-holders convened by Mr. Pearson, I find myself especially particularised as formerly superintendent of Tecoma Mine. If Mr. Snell thus prominently brings my name before the public, the company's solicitor, should have stated (as there have been three superintendents of this unfortunate mine) that my connection with Tecoma resulted in the issue of a report, dated Oct. 30, 1873, or within ten months of the formation of the company, exposing the grossest swindle ever perpetrated on a confiding public, Mr. Davis and his friends receiving 300,000l. in cash and shares for a property that was at the time not worth as many pence.

With regard to the meeting of debenture-holders, the subject of Mr. Snell's criticism, I can bear witness to the fact that, with the exception of two or three persons, whose names were not in the possession of the trustee, notice was duly posted to every debentureholder. It is a fact within my knowledge that holders of over 10,000l. worth of debentures have requested Mr. Pearson to oppose Mr. Snell's application, and the statement that he (Mr. Pearson) made at the meeting was that he held proxies for several thousands, and had that morning been waited on by gentlemen holding over 5000l., expressing their concurrence; and since then he has received further support and countenance in the opposition he offers to Mr. Snell. "What, therefore, can you think of Mr. Pearson's printed circular?" as Mr. Snell asks, except it is literally true.

The evidence has not yet been brought before the Court, but it will be, and Mr. Snell's circular savours merely of an attempt to prejudice the case, the facts being (excuse the Hibernianism) extremely one-sided. For this city attorney's disinterested desire to protect the debenture-holders "at his own expense" I have no words wherewith to express my grateful astonishment, and this I have no occasion to be let slip by without announcing to unbelievers such commendable philanthropy. Credit Juden.

RAYNER ST. STEPHENS, Mining Engineer.
Great Winchester-street Buildings, London, Oct. 25.

FLAGSTAFF COMPANY.

SIR.—Some editorial remarks on the affairs of this company, in last week's Journal, struck me as so sensible and to the purpose that I am provoked once more to try and say a word, through your assistance, to those interested in the undertaking. Some months ago, in a letter to you, Sir, I sought to draw the attention of the shareholders to a scheme by Mr. Pearson, which commended itself strongly to the judgment of myself and several legal friends, and which had for its object that reorganisation, or, as he puts it, re-formation, of the company that now appears to you as so desirable. It is the only practical plan that has been put forward. Nothing whatever has been done by the board since Mr. Vincent took the helm, and promised "influential men of means" as ready to join the direction, and a gigantic effort was to be made, but nothing has been produced, not even the "mouse." Two or three have been elected directors, and after a brief sojourn have resigned, and now there are but two directors, both Americans, but one is naturalised. The annual general meeting, overdue six months, has not been held, no accounts passed, no report made. Meantime petitions to wind-up are coming in, and the salaries of the officers of the company in London and the management in Utah are greatly in arrears, and no opportunity of subscribing a fund for their relief is afforded to the shareholders, who do not even know that they are in imminent danger of being left without a single representative at the seat of their property in Salt Lake City. I have seen this morning a circular by Mr. Snell full of statements and charges that have been answered over and over again. He is desirous of helping the de-

benture-holders "without asking any pecuniary support," the generous man; but it seems to me "that the trusts should be wound-up under the direction of the court" is sufficient protection to all, and that having agreed in that same decree "that all imputations against Mr. Pearson and Mr. Harvey should be withdrawn." He is out of date, and beyond patience in renewing his scandalous attacks.

LAWYER.

PANT-Y-MWYN MINE.

SIR.—In reference to the observations contained in Messrs. Watson Brothers' circular, in last week's Journal, great stress seems to be laid on the issue of certain shares in the above company at a discount. They have on more than one occasion referred to this, and I am puzzled why they should repeat it again. Will they bear in mind that those shares were issued prior to the great and valuable discoveries of lead being made, which has resulted in the increased value of the shares, and their being so eagerly sought for? When I was last down at the mine, Captain Hughes informed me that he had received instructions from the directors to look after an engine for erection at the Modlyn shaft; and now that an important discovery has been made in this part of the mine, it will doubtless be pushed forward without delay. With regard to the monthly cost, I saw the cost-sheet for the month, and can assert it was only a trifle over 200l. The present discoveries have been made at the upper western portion of the great bulk of ore, which will no doubt be laid open in the eastern and deeper workings. These have been worked chiefly from the Day level at 100 yards deep to a level driven 30 yards deeper, and whence they are extracting large quantities of rich ore, assaying about 80 per cent. for lead. It would be very difficult at present to calculate the reserves of ore that exist between these levels; but in depth the lode is increasing in strength and productiveness, and a succession of deeper levels will no doubt open out immense reserves. The Modlyn shaft is being sunk with all possible dispatch, and has recently intersected the main lode, some 30 yards below ad level. The ore at this point is pure in its character, and is no doubt a continuation of the rich course of ore at Griffith's shaft workings. The heading wall of the lode has a smoothly polished slicken side, usually found highly congenial to lead deposits of magnitude, and most frequently in close proximity to them, and from this section of the mine they may calculate on continuously increasing returns; and when the engine is erected, to cope with any water that may break out, this mine will, without doubt, be one of the most valuable and prolific in Wales. The lode that traverses the sett is the same as that which yielded 400 tons monthly for many years to the Mold Mining Company, and it is believed that upon further development Pant-y-Mwyn will be able to return the same amount.

ARISTOTLE.

PANT-Y-MWYN MINE.

SIR.—We wish to correct a slight error which appeared in your City Article of last Saturday in reference to the above, wherein it is stated:—"In sinking the Modlyn shaft, which is about 210 yards to the east of Griffith's shaft, from where they are returning about 70 tons monthly; they have struck into rich ore, which the engineer believes to be the top of the great course of ore dipping towards it from Griffith's shaft workings. This is about 125 yards below the great day level, or 125 yards from surface." In the first instance the returns have hardly yet touched 70 tons monthly; we should say about 60 tons. Secondly, in reference to the discovery at the Modlyn shaft, it was made about 25 yards below the great day level, or 125 yards from surface. We have personally inspected this property on several occasions, and have great faith in its intrinsic value and future prospects.

JONES and HOUSTON.

London, Oct. 25.

[For remainder of Original Correspondence see this day's Supplement.]

BRITISH SILVER-LEAD MINING COMPANY—SPECIAL REPORT.

Oct. 25.—Complying with your instructions, I visited your mines on Saturday last, the 19th inst., and have now the pleasure of submitting my opinion of the prospects, and most advisable course to pursue in its development. The mines are situated in the parish of Festiniog, and about two miles from the important town of Blaenau, in the county of Merioneth, to which place a railway is constructed, the same passing within 100 yards of your works, and from which town transit is easy and inexpensive. The geological features are in every respect favourable, the strata primitive, and the conformation of the surface specially striking, showing an extensive upthrow along the line of lode; there are also numerous feeders traceable into the hanging, and other characteristics found in combination with rich ore deposits in the primitive formation. The main lode is powerful, strongly mineralised, well defined, bearing about 12° north of east, and has a favourable underlie. Seldom have I seen a lode so rich at surface, and one that shows more decided improvements in strength and value as depth is obtained. You can better understand what I say than with the present appearances only profits can be made by proper appliances for dressing and separating the ores, but if the lode still increases in value as depth is attained, and only in proportion to that indicated by your present sinkings, you may reasonably hope for a bright future. I venture this opinion because the favourable symptoms, above explained, are to be seen in trial pits on the lode, thereby proving the mineralised character for some hundreds of yards in length, and in each trial are to be seen most beautiful lode compound, having all the accompaniments of rich ore deposits. In conclusion, I would remark that as a rule mining reports seem to be stereotyped from the fact that all lodes, rocks, and mine operations are not very dissimilar, but the pit will be found in the opinion upon prospects. I give mine without hesitation, which is that your project is sound, fair, and legitimate, and well worth the attention of capitalists. With respect to future operations I would advise that as enough is already done to prove the lode on surface, your energy should be employed to prove the same in greater depth by sinking your eastern shaft with all speed. Appearances during its progress will best dictate as to future works, which, as I expect, will be favourable, the outlay in steam drills and dressing machinery should be similar to the present, and its complete development taken seriously in hand.—ABRAHAM FRANCIS.

AUSTRALIAN MINES.

ENGLISH-AUSTRALIAN (Gold).—Capt. Raisbeck, Sept. 2: In the 420 ft. level we have extended the drive 14 ft., and not meeting with quartz the men were put to rise from the back of the level north of former rise; up 35 ft. struck quartz, but no gold visible. No. 2 rise has been extended 20 ft., distance up from level 47 ft.; we passed through quartz for several feet, but have seen no gold. In the 320 ft. level No. 2 rise has been put up 50 ft., and struck the same stone as in No. 1 rise. We have driven south from No. 1 rise 79 ft. upon the course of the lode, and hold to No. 2 rise; there is a nice run of stone, but very poor as yet.—Stopes: We have crushed 37 tons of stone from the stopes, and 180 tons from the different rises. The result for the month nearly 16 ozs. of retorted gold; two-thirds of this gold came from the stopes. We shall have more men on the stopes next month. We have let a tribute in the back of the 320 ft. level, north of our present workings; the men can see a little gold. We have also let a tribute north of Re house's claim, on surface leaders. They have raised about 15 tons, and are now crushing. The company is to receive 50 per cent. of the gross yield.

ENGLISH AND AUSTRALIAN (Copper).—The manager (Port Adelaide, Sept. 5) writes:—The stock of coals at Port Adelaide was about 511 tons, besides three ships to arrive from Newcastle, New South Wales. At the Port Adelaide works there were two smelting and two roasting furnaces at work, and at the Newcastle works there were four smelting, four roasting and two calcining furnaces. Since the date of last advice about 60 tons copper had been shipped.

SCOTTISH AUSTRALIAN.—The directors have advice from Sydney, dated August 31, with reports from the Lambton Colliery to August 19. The sales of coal for August amounted up to August 29 to 21,265 tons.

PORT PHILLIP AND COLONIAL (Gold).—Aug. 31: The quantity of quartz crushed on both the company's and tributors' accounts for the four weeks ending August 14 was 4641 tons; pyrites treated, 30 tons. Total gold obtained, 1839 ozs. 13 dwts. 12 grs. Receipts (including 2176l. 4s. 6d. obtained from tributors), 4320l. 15s. 1d.; payments (including 331l. 7s. 6d. paid for firewood, &c.), 2448l. 5s. 1d.; profit, 1872l. 13s., added to which was the previous balance of 1801l. 3s. 11d., making an available balance of 3673l. 16s. 11d. The amount divided between the two companies was 1800l., the Port Phillip Company's proportion of which is 1040l. The balance carried forward was 2073l. 10s. 11d. Remittance, 1000l. The company have also received the following telegram, dated Melbourne, Oct. 18:—"Month ending Oct. 9—Gold obtained from company's quartz, 348 ozs. Gold obtained from tributors' quartz, 1227 ozs. Profit, 1304l. Remittance, 1100l."

YORK PENINSULA.—The directors have advice from the Committee of Inspection at Adelaide, dated September 4, with report from the Kurilla Mine to the 2nd of that month. The following are extracts from Captain Anthony's reports:—"Kurilla Lode: The 55 fm. level is driven east 7 fms., and west 4 fms., from the shaft. I am sinking a winze in the 45 east, 15 fathoms from the engine shaft, with the object of ventilating the 55; sinking was commenced where a firm ore crossed the lode in driving east. After sinking from 2 to 3 ft. a mere film of ore in the eastern end of the winze was come upon, which has continued and enlarged; it is now 1 foot wide of good ore, or worth 3 tons of 17 per cent. ore per fathom. I hope soon to find this ore in the 55 drive, and should it continue it will prove a great help in extending the drive to the main run of ore at and about the hauling shaft. At the 45 west the wall on which I have been driving is more decided; the ground is softer, wetter, and more promising, and there is more or less of ore sprinkled throughout the lode and surrounding rocks. The stopes in the 45, east of the hauling shaft, continue to produce fully 4 tons of 20 per cent. ore per fathom.—Morphet's Lode: The engine shaft is nearly 8 fathoms below the 30; the lode is 6 ft. wide, with two branches of ore of about 1 foot wide each, or (say) 6 tons of 17 per cent. ore per fathom. . . . At the 30 east the lode has widened to over 4 ft., in which there

are six branches of ore, the rest being schist. The lode at the 20 presented a similar appearance before entering the run of ore ground. I am hopeful that I shall be able to report a good lode here next month. . . . I consider the prospects of this lode remarkably good. There are over 400 fms. of lode in the back of the 30, most of which will make good tribute ground, and I shall set it as soon as a better price for copper is obtainable.—Ore Returns: In addition to the 130 tons mentioned in the last report as in course of shipment per Ontapa 53 tons more had been shipped by that vessel, and 55 tons by the City of Adelaide, the whole averaging nearly 19 per cent. Ore on hand and at the mine, 171 tons of 17 per cent., and 800 tons of dredge ore of about 5 per cent.

THE WEEK.

SATURDAY, OCT. 19.—Business was done to-day in National Provincial Bank shares at 79; in August the same shares were selling at over 90. Sales were also made of City and Westminster Banks. In mining shares Eberhardt, Richmond, and Colorado were wanted. Business was done in United Mexican at 47. Wye Valley fell to 11, and West Wye Valley to 2. Great Laxey and Van were offered at 16, but buyers did not come forward. Rookeope are now 11s., and Parys Mountain 6s.

MONDAY.—Van shares were offered at 15, and Cape Copper fell to 23½. Colorado shares were rather in demand again at 24 and 2½. Port Phillips were also wanted; the reports from the mine continue good, and for the month ending 15, a profit of over 1800l. was made. The shares were worth buying. The Scottish Australian Mining Company propose a dividend at the rate of 15 per cent., and the extension of the reserve fund to 21,000l. In the miscellaneous department London Steamboat fell to 4½, Royal Aquarium to 5½, and Otago Investment 1½.

TUESDAY.—Rather a bad day for gas and bank shares. Imperial Continental closed 10l. lower; Commercial, Gas Light, and Phoenix, 5l. each. London Joint-Stock Bank and London and Westminster dropped 2l. City Bank was dull at 15½, having lost the advance shown last week. Shares in the various trust companies were pressed for sale. Holders of Government Stock Investment Company accepted 1½, and there were sellers of Railway Share Trust at 5½. Mining shares remained steady. Eberhardt were in request at 3½, Don Pedro at 12½, and Port Phillip at 11½, ex div. Not much was done in Richmond, but people on the market are good buyers of all that can be got.

WEDNESDAY.—Gas and bank shares fared even worse to-day. It would take very little now to cause a run on two or three banks in the City, whose credit has unfairly suffered by idle rumours. A drop of 5l. took place in London and Westminster, the dealers at the close refusing to bid more than 50; at one time during the day there were buyers at 55. Leeman's senseless Act is now found to cut both ways; the dealers are afraid to speculate in bank shares, and will not take any more that are offered, no matter how cheap, until they have found a place for them. London Joint-Stock fell 2½, and the others about ¾ per cent. on the average; two or three excepted, which having nothing to lose remain very firm. Gaslight: 1 London Gas tumbled down 5l. each. In mining shares Eberhardt advanced to 4½.

THURSDAY.—For over a week there has been a daily fall in Grand Trunk securities; the great bulk of these are held in the North, and as the majority of the sales come from that quarter, probable buyers here simply look on so far, fearing that lower prices may yet prevail. The half-yearly meeting will be held on Tuesday next. The gross receipts show an increase of 10,167l., and the working expenses have increased by 2788l. Freight improved, but there was a falling off in the passenger receipts. It is noticeable that Sir James Ramsden, Grosvenor Hodgkinson, and Kirkman Hodgson, M.P., have left the board. For a long time past Trunks have invariably touched a low figure towards the end of the year, and it has always been good practice to buy and keep the stocks until the spring following. An advance of 50 per cent. has not been unfrequent. The ordinary are now 6, first preference 35, second preference 24, and third below 11. The ordinary has not been so low for years past. Last October the price of the first preference was 45; of the second, 29; the third being 17.

FRIDAY (Opening).—Turkish stocks are inclined to be firm, on the news that the Sultan accepts the proposed English reforms. The Five are strong, at 11½. Egyptian Unified and Preference are, however, each down ¼. Bank shares show a general improvement, Westminster being 56, Joint-Stock 41, Union 38. There is also a rise of 2 in Imperial, Continental, and in Commercial Gas. Tin shares are neglected, lead shares not being in much better plight. The following foreign mines are firm, and wanted:—Eberhardt, Sierra Buttes, New Zealand Kapanga, Plumas Eureka, and Port Phillip. Two o'clock.—Turkish Five now only show a rise of ½ on the day, being exactly 11. Great Eastern and British are down ¼, and North Eastern are ½ per cent. Sellers of Westminster now ask 58; but offer 42 for Joint-Stock; Union unchanged. A moderate business is being done in Consolidated, Mercantile River Plate, and the 12½ paid shares of National Provincial. Roman Gravel, 8 to 5½; Tankerville, 3 to 3½; Rookeope, 8s. to 10s.; West Chiverton, 1½ to 2; Colorado, 2½ to 2¾; Eberhardt, 3½ to 4½; Frontino, 2 to 2½; Kapanga, ¾ to 1½; Richmond, 9½ to 9. Four o'clock.—West Chiverton, 1 to 1½; Roman Gravel, 5½ to 6½; Javali, 8s. to 7s.; Plumas Eureka have been dealt in at 2¾, and Sierra Buttes at 1½. Business was marked yesterday in London and Westminster at 52½, and to-day at 53. Bilson and Gram, 2½ to 3½; Chapel House, 2½ to 3; Newport Abercorn, 4 to 4½; Cardiff, 1½ to 1¾; Alltani 3 to 3½.

FREDERICK R. KIRK.

The following report was received too late for insertion in its proper place:—

BWLCH UNITED.—N. Bray, Oct. 19: Enclosed I beg to send you cost-sheet and merchants' bills for the month ending the 12th inst. Ritchie's engine shaft is now down about 4 fms. below the 90, and the water has so increased that we cannot any longer sink with barrels to advantage; consequently I have had the old engine-shaft to the west drained, and the bottom lift of pumps taken up to fix here without delay. As explained to you when at the mine, and as the cost-sheet shows, the men are constantly employed stopping at the 61 fm. level, as they have been drawing, filling and lashing stuff, and securing old stuff, &c., at the same level, and any other incidental work, so that the shaftmen may be hindered as little as possible. So far as opened in length and depth, the slope keeps up to its full average produce.

CLEANING METAL PLATES.

The nature and novelty of the invention of Mr. EDWIN YATES, of Glasgow, consist in the use and fitting of a pair of revolving brushes in front of the rolls of an ordinary plate rolling and pressing machine, for re-rolling or flattening plates after being brushed by hand. The brushes are each preferably made in one, two, three, or more longitudinal bars and rails, equally divided round eyes or arms on their spindles, and divided or set so as to revolve at a high speed in the spaces between or opposite each other, close together, so as to brush the upper and lower surfaces of the plates as they are fed in at first by hand until the front end of the plates enter the pressing and drawing rollers beyond, which then draw the plates through the brushes, which are driven and revolved at a great speed in the different direction to that in which the plate is moving and the pressing rollers running. A wedge or trumpet shaped feeding-in mouth-piece is fitted across the whole front of the brushes, wide enough for the broadest plate to be rolled and cleaned, and a continuation of it is fitted between the brushes and the rollers to guide the plates from the brushes to these.

The shafts of the brushes and rollers are erected to revolve in bush bearings in the cast-iron side frames of this improved combined brushing and rolling plate mill or machine, and the spindle of the upper or lower brush might be driven direct by a belt and pulley or pulleys on it from any adjacent motive shaft, and which by spur wheels at the other end might give motion to the other brush by its spindle, both brushes revolving at the same speed towards each other; and when desired guides may be formed at the edges and through between the brushes of the feeding-in mouth-pieces for the guiding in of the plates, which would be placed in a heap on a feeding-in table in front of the machine ready for being fed into the brushes and straightening rollers as described.

The plates are thus delivered, both cleaned and flattened, from this combined brushing and rolling machine, direct from the galvanising vessel as they cool instead of at two operations as heretofore. Although only one pair or set of brushes have been described, it will be evident that two or more sets may be used, and a set of brushes might also be ranged on the delivery side of the drawing and pressing rollers, and a pair of small feeding-in rollers might be used in front of the brushes, instead of, or in addition to, the feeding-in mouth-piece. And although this machine is essentially designed for brushing and cleaning the surfaces of galvanised or tin-coated sheet metal plates, it is also applicable for brushing, cleaning, or polishing other coated or non-coated sheet metal plate.

THE SUPPLEMENTARY SHEET.—We have received occasional complaints, and at late a good many, that the Journal delivered by country booksellers without the Supplement. Subscribers would oblige us by demanding that the paper should be handed to them complete, as every Journal is accompanied by the Supplement when it leaves our office, and the fault of omission must rest with the country bookseller or their London agent.

IMPORTANT NOTICE.—REDUCTION OF POSTAGE ON THE "MINING JOURNAL."—In consequence of the new POSTAL CONVENTION, which came into operation on July 1, the postage of the Mining Journal to many countries will be reduced to one fourth. Henceforth the subscription will be 12. 10s. 4d. per annum (59 frs.), postage included, for the following countries. The amount will, if desired, be collected at the subscriber's residence at the end of each year. The subscription continues until countermanded:—Austria, France, Belgium, Denmark (including Iceland and the Faroe Islands), Egypt, Germany, Gibraltar, Greece, Heligoland, Italy, Luxembourg, Netherlands, Norway, Portugal (including Madeira and the Azores), Roumania, Russia, Servia, Sweden, Switzerland, United States, Malta, Turkey, Morocco, Tunis, and the Canary Islands. Spain 12. 10s. (50 frs.)

NICKEL AND COBALT REFINING. AND GERMAN SILVER WORKS, 16, COZZELL STREET NORTH, BIRMINGHAM. STEPHEN BAKER begs to inform the Trade that he has the following articles for sale:—REFINED METALLIC NICKEL. REFINED METALLIC BISMUTH. OXIDE OF COBALT. GERMAN SILVER—IN INGOTS, SHEET, WIRE, &c. NICKEL AND COBALT ORES PURCHASED.

WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS, &c.
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

Ten years ago the weekly information which had previously been published for a great number of years in *WATSON BROTHERS' Mining Circular* was transferred to the columns of the *Mining Journal*, with the following announcement; which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the *Journal* on the Clementina Mine.

In the year 1843, when mining was almost unknown to the general public attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1853), "Cornish Notes" (second series, 1855), "The Progress of Mining," with Statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and sharedealing than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and to state—

That they issue daily to clients and others who apply for it a Price List (as supplied to most of the London and country papers), giving the closing prices of Mining Shares up to Four o'clock.

They also buy and sell shares for immediate cash or for the usual fortnightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charges for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other Securities dealt in upon the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

Many years ago we cautioned our clients against taking shares in unlimited banks, yet, no doubt, some hundreds of persons who may be completely ruined by the failure of the City of Glasgow Bank would have hesitated in touching a limited mine, where the profits per cent. might probably be as large, and the loss, in case of loss, of limited and known extent. We prefer and advocate what we understand something of, and such shares as we can safely recommend on the principle we have always supported—that of a division of risk in a few mines, so as to secure success in the aggregate. The great "scare" of mining has been the "Cost-book"—or rather the mismanagement of it—such as we have lately witnessed in Cornwall, where, as in these unlimited banks, the liability of each shareholder extends to the whole of the debts. But mines now are mostly limited, and no one who invests can be called upon for more than he goes in for, unless for necessary purposes, and then it is entirely at his own option. The failure of this bank has happened at an unfortunate time. For months past there has been great depression in trade, and low prices in stocks and shares, and those who have had money to invest have hoarded it, to see "how things would go," and to get them at their lowest. This depression is now increased by the quantity of shares of every kind thrown on the market, and the fear of further disasters. And it generally, if not invariably, happens that when everybody wants to sell nobody wants to buy. If the public do not come in to relieve them dealers cannot be expected to overload themselves with stock, especially when if they buy of one person to-day another may offer the same stock still cheaper to-morrow.

The only way in such times is for shareholders to keep quiet, and for those who have money to invest to take advantage of the times and buy into good things. We are almost daily asked by numbers of correspondents our opinion of different mines, and what is good to buy, and we endeavour to answer as correctly as we can, and in a sort of panic like this it is our duty to caution them against selling, or being frightened at lower market quotations.

D'ERESBY MOUNTAIN.—The heavy expenditure for machinery already erected, and anything more that may be required, as well as the development of the Valley sett, being charged to capital account, the sales of lead will be placed against current costs, and will we hope soon lead to dividends. In our opinion, and we are among the largest shareholders, the issue of shares has placed the company in a better and stronger position than it has ever been in before, owing to the limited capital it commenced with. Shares, therefore, are now better worth buying than ever.

D'ERESBY CONSOLS.—We do not anticipate any great improvement till the Cobblers' lode, which is a north and south lode, is met with. The open cavity and easier ground in the east and west lode on which we are driving is greatly in favour of lead at the junction.

ABERLYN.—If all we hear of this mine be true, and we have no reason to doubt it, shares should be bought at once. None of these mines have had any market support, and Aberlyn may rise to double its present price on its merits alone.

MORFA DU.—This mine is opening out all that we predicted of it, but we suppose until all the calls are paid up shares will not move upwards. We look, however, to the mine, and not to the market, and if a good price is obtained for the bluestone immediate profits will be made. The lode is worth 7 tons per fathom, and as the stuff is sold in the stone there is only the expense of raising it.

WEST CHIVERTON.—If our correspondent had studied the accounts as given in the *City article* of the *Mining Journal* he would not now express surprise at the fall in share.

SANTA BARBARA.—We hope the profits here will soon reach 1000, per month, for the quantity and quality of the gold is improving. We called attention to the shares when they were very low in price, so that those who followed our advice have been getting good dividends, and will double the capital they invested. Some weeks ago we referred to Pitanguy and its prospects, and hope shortly to hear of the jacutinga being reached. There is the prospect of a good rise in shares, which are now very low. Management same as Santa Barbara.

GAS.—Just what Australian and Tasmanian tin has done for mines electricity seems likely to do for gas, and the holders of gas shares are much about in the same state of alarm that tin miners were on the first advice from Australia. Tin, however, is an article in universal request, and will always be in demand at some price or other. There are the chances, also, of mines at the Antipodes becoming exhausted, or too expensive to be worked so as to compete with our home mines, and we shall have ever before us the prospect of hope and better times, however deferred. Will it be so with gas? Writing many years ago in the *Mining Journal* on the formation of mineral veins, we entered fully into the theory of electrical currents and their condensation of minerals against the cross-currents, which acted as non-conductors, and against which the great masses of ore were found. And we added that electricity was a more powerful agent in the world and in the ways of life than was generally acknowledged, and that its uses might become better known and appreciated as time progressed! It is making strides now with a vengeance, and with a blaze of light, and if this light can be divided into jets, as we are assured on high authority in England that it can, then the great monopoly of gas companies will be at an end.

PRINCE OF WALES.—A tribute pitch was set on the Wheel Brothers silver lode in the back of the 24 level, two months ago, at 13s. 4d. in 11, tributaries to pay for dressing, &c. The time being up, the stuff raised has been assayed by Mr. Jenkins: No. 1 sample yielded 2649 ozs. of silver to the ton; No. 2, 102 ozs. Private assays gave 770 ozs. to the ton. We have not yet learnt the quantity.

SATURDAY, OCT. 19.—Market for tin shares firm. Carn Breva, 30 to 32½; Dolcoath, 22 to 24; South Condurow, 10 to 10½; South Frances, 4½ to 5½; Tin-

croft, 6 to 7; Agaz, 3½ to 4; Grenville, 1½ to 2; Peavor, 6 to 6½; Aberlyn, 11 to 13; Great Laxey, 15½ to 16½; Roman Gravel, 6½ to 7½; Tankerville, 3½ to 4; Van, 15 to 16.

MONDAY, OCT. 21.—Market very quiet. Van, 15 to 16; Great Laxey, 15 to 16; Roman Gravel, 6 to 6½; West Chiverton, 2 to 3; East Van, 2½ to 3; West Tolgus, 40 to 45; Parys Mountain, 4s. to 6s.; Pateley Bridge, 3½ to 4; South Frances, 4½ to 5½; Carn Breva, 30 to 32½; Dolcoath, 22 to 24; Peavor, 6 to 6½; South Condurow, 10 to 10½.

TUESDAY, OCT. 22.—Market again very quiet, and prices are merely nominal. Aberlyn, 11 to 13; Carn Breva, 30 to 32½; Devon Great Consols, 1 to 1½; Dolcoath, 22 to 24; East Van, 2½ to 3; Great Laxey, 15 to 16; Leadhills, 1½ to 2½; Parys Mountain, 4s. to 6s.; Pateley Bridge, 3½ to 4; Penstruthal, 3s. to 5s.; Roman Gravel, 6 to 6½; Rookhope Lead, 10s. to 12s. 6d.; South Condurow, 10 to 10½; South Frances, 4½ to 5½; Tankerville, 3½ to 4; Tincroft, 6 to 7; Van, 15 to 16; West Chiverton, 1 to 2; West Tolgus, 40 to 45; Agaz, 3½ to 4; Grenville, 1½ to 2; Peavor, 6 to 6½.

WEDNESDAY, OCT. 23.—Market continues very inactive, and prices without any material alteration. Thursday, Oct. 24.—Market again dull, and prices nominal. Van, 15 to 16; Great Laxey, 15 to 16; Leadhills, 2 to 2½; East Van, 2½ to 3; Roman Gravel, 6 to 6½; Tankerville, 3½ to 4; Carn Breva, 30 to 32½; Dolcoath, 22 to 24; West Frances, 4½ to 5½; South Condurow, 10 to 10½; Aberlyn, 11 to 13; Clementina, 1½ to 1¾.

FRIDAY, OCT. 25.—Market for tin shares rather firmer. Dolcoath, 23 to 25; Carn Breva, 30 to 32½; Tincroft, 6 to 7; South Frances, 4½ to 5½; South Condurow, 10 to 10½; West Tolgus, 40 to 44; Grenville, 2 to 2½; Pateley Bridge, 3½ to 4; Clementina, 1½ to 1¾; Van, 15 to 16; Great Laxey, 15 to 16; East Van, 2½ to 3; Leadhills, 1½ to 2½; Roman Gravel, 6 to 6½.

Mining Correspondence.

BRITISH MINES.

ABERLYN.—S. Toy, Oct. 23: The deep adit cross-cut is now driven north 8 fms. 5 ft.; during the past week the ground has changed for the better, and we are now meeting with soft branches containing nice carbonate of lime and spots of lead, which are underlying north towards the lode.

ABERLYN.—John Roberts, Oct. 23: No. 1 Adit: We have commenced sinking the winze to communicate with the large course of blende in the middle adit. We are sinking on the eastern side of the lode, and shall cut through it in sinking. There is good blende in the face of the lode. At the middle adit the lode is looking well for blende. The shale on the footwall is wider and softer than it was, and the blende on that side partakes more of the character of the blende which occurs in the shale. At the deep adit we have commenced to rise towards the middle adit; this rise is now out of the run of the blende, but I expect to get into it before we get a communication. The surface work is getting on rapidly.

BEDFORD UNITED.—R. Goldsworthy, Oct. 24: There has been no change taken down in either of the levels since my last report, nor is there any other change to notice. We are busy preparing for the sampling to-morrow.

BETTS Y-COED.—H. T. Haley, Oct. 22: The shallow adit end is in a fine-looking lode all the width of the end, and more lode standing south, worth for the part being driven on 25 cwt. of lead ore per fathom, and a good mixture of blende. The deep adit end is opening out in the most satisfactory manner, and worth 25 cwt. of lead ore per fathom. In stopping the western end of the winze to make a footwall and there is a fine-looking lode, worth 20 cwt. of lead ore per fathom. The surface work is being progressed with all dispatch.

BLUE HILL.—S. Bennett, P. Bennett, Oct. 19: The Blue Burrow shaft is being sunk on the north lode below the adit, at 6 ft. per fathom. That same north lode in the 30 east end (on the north side of a gossan which lies between those two points) is worth 12½ per fathom, and altogether of a most promising appearance.

BODIDRIS.—H. Hotchkiss, Oct. 23: There is no particular change to notice underground here since my last. All are going on regularly, and with as much speed as possible. The shaftmen are getting on well with casing and dividing the shaft, and I hope to have the pit head erected on Friday next.

CAMBRIAN MINES.—T. Glasville, Oct. 19: ESQUAIRE: Eastern Shaft: In my report of Oct. 14 I informed you that we made a new discovery of lead ore in the 70, and so far as opened on was 3 ft. wide, but as we were not through it it was impossible to state the value of the same. We have now cut through the 1st part of the lode, and find it to be 4 ft. wide, yielding at least 2 tons per yard. In cutting pit in the bottom of the shaft we have a lode of very rich copper nearly 2 ft. wide, and producing 3 tons per yard. In the 70, west of shaft, the lode is producing good stones of copper, with every indication of an early improvement. Since my last report we have been laying tramroad in the 45 east level, west of shaft, and shall now recommence driving on the lode, and by the appearance of the sulphur in the breast of the level we may expect to meet with something good at an early date. We have now broken 10 tons of lead from the new discovery.

ESQUAIRE: We are still cross cutting towards the main part of the lode.

CLEMENTINA.—J. Roberts, Wm. Sandoe, Oct. 16: We are making very fair progress with cutting the wheel pit, and we expect the wheel here by the time it is ready. We are also making ready to put down a new lift from the adit to the 15, which will replace the small one now working. There will be a little ground to cut down in the shaft, in order to fix the lift, which will be done whilst the wheel is being erected.

CLEMENTINA.—J. Roberts, Wm. Sandoe, Oct. 23: The wheel-pit is in a very forward state, and we are advised that the wheel is ready for shipment.

COMBARTIN.—T. Comer, Oct. 24: The end driving south-east on the counter lode is looking very promising; we are daily expecting a further improvement. In the same level north west the lode is yielding some nice seams of lead and blende, and has every appearance of further improving.

DE BROKE.—J. Phillips, Oct. 23: In the 55, driving east of Wilson's shaft, there is a good string of ore, and the lode generally has improved during the past week, and I hope to have the pit head erected on Friday next. The 45 east level, west of shaft, and looks encouraging; lode 4½ ft. wide, with a leader on the north side producing large stones of ore, mixed with copper, quartz, &c. The 45 east is suspended for awhile. The winze sinking below the 35 east is in a large lode, made up of killas and a large proportion of crystallised quartz, and is opening stopping ground for lead ore. The stop in the back of the 35 east is improved, and now yields 30 cwt. of lead ore per fathom. The stop in the back of the 25 east is also improved to 35 cwt. per fathom. Biddings for 20 tons of lead ore are due on Saturday next. Machinery, dressing, &c., going on steadily as usual.

D'ERESBY CONSOLS.—J. Roberts, W. Sandoe, Oct. 23: The large vein has almost disappeared; the lode is wide, composed of spar, sulphur, and a little lead and blende, leaving out water freely.

D'ERESBY MOUNTAIN.—J. Roberts, W. Sandoe, Oct. 23: No. 1 adit is very similar to what it was last week—a mixture of lead and blende; lode from 1 to 1½ ft. wide. In No. 3 adit the rise is looking very promising; the lode is 2 ft. wide, with good ribs of lead and blende. In No. 4 there is no change in the stop. The winze to No. 5 we have commenced clearing. The ground at the ends of the winze appears to have been stopped away. At the No. 6 adit we have cleared to about 16 fathoms from No. 3 shaft. The level is choked full of stuff, but the sides are firm, and we hope now to make good progress. The surface work is going on as fast as possible. The stonebreaker is being fixed, and will be ready in a week or so, in the meantime we are getting down, and treating the stuff from the upper levels.

DENBIGHSHIRE CONSOLIDATED.—R. Prince, A. Francis, Oct. 24: We still continue to raise capital lead from our 65, some of the rocks weighing 1 cwt. We also have about 12 tons of lead raised from here, and the tribute pit in the back of the 112 west, which is looking well.

DEWEN.—J. Morphet, Oct. 21: The list of bargains let on Saturday last is herewith sent:—The 35 east: The 35 east is a fine-looking lode, and the vein in this level, 8 fathoms back from the end, the vein is at present yielding 1 ton of ore per fathom. No. 1 stop is 6 ft. wide, worth 16 cwt.; No. 2 is 5 ft. wide, worth 18 cwt.; No. 3 is 5 ft. wide, worth 16 cwt.; and No. 4 is 4 ft. wide, worth 14 cwt. No. 5 stop is at present worth 14 cwt., having got too close upon No. 4, and we have suspended it for a couple of months or so. The 93, west of Jefferies', continues to lay open strong backs. No. 1 stop, in the back of this level, and 20 fathoms behind the end, reported at your annual meeting to be worth 15 cwt., has the last few days further improved to 1 ton 1½ cwt.; vein 5 ft. wide, No. 2 is 4 ft. wide, but contains poor, value 6 cwt.; No. 3 is 4 ft. wide, and worth 1½ ton ore per fathom. No. 4 is of like width, and worth 1 ton of ore per fathom. We have started four men to rise and stop about 2 fathoms behind No. 4 stop, where the vein is 3 ft. wide, and yields 14 cwt. of ore per fathom—8 m. vein: The stop in the back of the 70 fm. level, 14 fathoms west of the shaft, is 4 ft. wide, but worth only 8 cwt. of ore per fathom. The 70 east is 2 ft. wide, and produces 10 cwt.; and the stop in the back is 3 ft. wide, and worth 12 cwt. —Westgarth's Shaft—Middle Vein: The 93 east in the early part of last week came harder, and the men cut for the month ending with Saturday last 3 fms. 6 in., a little less than we had hoped to see them. The level is looking well; vein 5 ft. wide, and produces 1 ton ore per fathom. The 70 east is 2 ft. wide, and worth 1½ ton, in 1 ft. wide, and will lay open good stopping backs. The stop in the back of the level is 3 ft. wide, and produces 16 cwt. of ore per fathom. Surface work all progressing very well.

EAST CRAYEN MOOR.—David Williams, Oct. 21: The new shaft from surface is down 10 fms. 4 ft. below the 42. The vein has greatly improved, being fully 4 ft. wide, composed chiefly of spar gossan, and lead ore, worth fully 1½ ton per fathom. Other points without change to notice this week. On surface we have commenced grating and dressing.

EAST DARRIN.—Oct. 23: The cross-cut south, in the 92 east, has been driven during the past month 3 fms. 3 ft., in ground composed of a blue clay-slate, and occasionally branches of carbonate of lime. The 92, east of the cross-cut, on No. 1 branch, has been driven 1 fm. 2 ft. in a lode 2 ft. wide, yielding on an average 8 cwt. of lead ore per fathom. The 80, east of cross-cut, on the south branch, has been driven 3 fathoms on a large and open lode, laying open tribute ground along the sole of the level, worth 10 cwt. of ore per fathom. The 80, west of the cross-cut, on the south branch, has been driven 2 fms. 2 ft. on a lode 3 ft. wide, yielding from 10 to 12 cwt. of lead ore per fathom. In the 80 east, on the south lode, we have resumed driving on a lode 3 ft. wide, containing strings of lead ore. In the 80 west, on the south lode, the lode is from 3 to 4 ft. wide, and looks very promising, now yielding small branches of ore. Richard's winze, sunk under this level, is down 12 fms. 6 in., the required depth in readiness for the 92 cross cut when driven into. The stopes and pitches throughout the mine continue to yield fair quantities of lead ore.

EAST VAN.—Wm. Williams, Oct. 24: We are still pushing on west on the course of the lode: still cutting off lead, but not sufficient to value.

EAST WATON COPIES.—R. Quentrell, Oct. 23: Patwork has been inspected by the Duchy agent, and we are now drawing up the materials here as decided upon at the meeting. In the south part of the set we are driving east and west of the two shafts. The south lode is looking just the same as at the meeting. The north lode driving east is looking better than it was at the shaft, being larger and better defined, and containing a little tin and muddle. In Sworgan we are sinking below the adit, where the lode is 2½ ft. wide, containing tin throughout. We have also begun to clear up a shaft on the large lode, where there is a large deposit of leadstone, with a little tin.

EAST WATON COPIES.—G. Rowe, G. Rowe, jun., Oct. 19: The part of the lode now in the end of the cross-cut at the 117 is chiefly composed of capel and spar, intermixed with muddle and ore. The lode in the winze sinking below the 105 is 10 ft. wide, worth 25½ per fathom. The lode in the stopes in the back of the 105 is worth 10½ per fathom. No. 2 stop, in the back of the same level, is worth 6½ per fathom. The tribute department is without change.

GLENROY.—R. Rowe, Oct. 23: There is no alteration to report to-day in the shaft sinking below the 80 only that the lode is again getting wider; now about 5 ft. wide, with a small mixture of blende through the quartz part of the lode.

GOGINAN.—Oct. 23: There is no change of importance in any part of these mines since our last report; the lode in the tribute pitches varies in produce from 9 cwt. to 16 cwt. of ore per fathom. At surface operations are going on regularly, and the machinery is in good order. Samples of 28 tons of good quality silver-lead ore were sent out on the 15th inst. for sale on Tuesday next, and every effort is being made to get as much ore as possible by our next sampling day—November 12.

GREAT LAXEY.—W. H. Rowe, Oct. 22: Little change to notice has taken place in the bottom levels of the Deep Mine since our general report. Owing to the slide the 235 end, north of Welsh shaft, is still in unsettled ground, and as we think the present one is not the main branch of the lode here, therefore, decided to cross cut at the end of the month. A fortnight since the 230 end north struck into good ground, but the lode has just now again fallen off in value, and worth 18½ per fathom. A winze in advance is, however, very near where much rich ground is standing, and beyond this we expect to find the lode steadily productive for a great length—Dumbell's: We are still prevented from renewing the sinking of this shaft, the water not yet being tapped. The lode in the 216 end north is at present worth 25½ per fathom. Although the lode is very strong and regular, the 20 end is as yet unproductive. Another small slide has disturbed the lode in the 185 end north, but is getting clear of it, and the lode resuming its former productive state. On the 20 end the lode is unusually disturbed. A cross-cut there going east would seem to show a cross-vein as if driven under its footwall, ore being seen all along; it can hardly be expected this will continue to stand, but it is important to trace it in the way we are doing before resuming driving northwards. After cutting through a slide in the 110 end north the lode has become still more promising, and is worth at present 14½ per fathom; the great importance of this point of operations has been repeatedly explained in previous reports. It is satisfactory to find the 85 cross-cut has now intersected a small but very decided branch of the lode, and if nothing further is met with we shall at once drive northwards on its course over the 110 roof, where there is a rich bunch of ore—Middle Ground: After proving the lode several fathoms north of the rise we are now opening up it southward, in which direction it looks strongest, and worth at present 25½ per fathom.—South Ground: The stop in the roof of the 165 south is worth 20½ per fathom. Another in the sole of the 145 has improved, and worth 40½ per fathom. Also one in the roof of the 100 south of a similar value. There is nothing specially new to report of the stopes throughout the mine generally. A large quantity of stuff is being raised at present of a lower average quality than usual, but as soon as certain important points are further opened upon we may fairly expect a better state of things.

GREAT LAXEY.—T. Harris, Oct. 19: The men in sinking the boundary shaft below the 14 are making good speed with their work, and the ground is a little more favourable for sinking than it has been.

HINGTON DOWN CONSOLS.—Thomas Richards, Oct. 21: Bailey's Shaft: In the 172 east the lode continues of great promise, producing 3 tons of ore, or 6½ per fathom. In the stop in the back of the 172 east the lode is still a good course of ore (and judging from present appearances it will continue), worth 7 tons of ore, or 25½ per fathom. In the 174 west the lode is of large size, containing capel, quartz, and muddle, with a little good quality copper ore, and is promising. In the 160, west of Nicholas' winze, the lode is of size without change. In the 160, in the bottom of the 160, the lode is still very promising, but for the present is not so productive, worth 3 tons of ore, or 7½ per fathom. The tributaries' stop and pitch in the back of the 110 the lode is producing some good saving work. Fair progress is still being made in the deep adit level.

LADYWELL.—A. Waters, Oct. 24: The new shaft below the 16 is at present in hard ground, hence progress is slow. The 16, south of shaft, is at present in a hard sparry lode, which is charged with stones of lead ore. The stop in this end is yielding good lumps of lead ore in soft ground. The 20, north of shaft, is through the twist into softer and better looking ground. We hope to meet with good ground here shortly.

LOVELL (RHE).—J. Frisk, Oct. 24: Hownan Shaft: In the 40 end, east of this shaft, the lode is getting more regular, and has the appearance of shortly being a large and profitable lode; this end has been disordered and poor for several fathoms, and a short cross-cut had to be driven south before the main wall could be discovered. It is important to note this level is in advance of any other point in the mine eastward, and only a moderate discovery here would, in all probability, open stopping ground to last us for years, seeing the back is whole to surface. The mine throughout is looking much better than for several months past, and the stamps are being kept going on moderate tinstone; we are also getting round a good parcel of tin.

MARKET VALLEY.—Wm. George, James Stenlake, Oct. 18: We beg to hand you the following setting report. The 90 west to be continued as per bargain set last month, at 11½ per fathom. The lode continues large, and never looked more promising since the driving was resumed than it does at present; continuing to produce some good quality ore, but not yet quantity enough to set a value on at the present low price of copper. To stop the south part of Rosedown lode below the 80, at 8½, which is worth 5 tons of ore per fathom. We have two men employed in an old stop above the 100, on the same piece of ground, with the view of communicating with the stop above. Whilst this is done the shaft will drop into a shoot, thus we shall be able to dispense with the wheeling at present.

To strip down the north part of lode in a stop below the 60, by four men, which yields 3 tons of ore per fathom. To stop back of 60, by four men, at 4½, worth 3½ tons of ore per fathom. To stop the back of the 50, by four men, at 3½, worth 3 tons of ore per fathom. Three stops in the back of the 40 fm. level, by four men in each—No. 1 at 2½, worth 3½ tons; No. 2 at 2½, worth 3 tons; and No. 3 at 3½, worth 3 tons of ore per fathom. To drive the 30 west, by four men, at 8½, per fathom; the lode is 2 ft. wide, and producing good stones of ore. To rise the 28 on the 25, by two men, at 10½, worth 3 tons of ore per fathom. The lode is 1½ ft. wide, and worth 1½ ton of ore per fathom. Two stops in the back of this level—No. 1, by four men, at 3½, worth 3 tons of ore per fathom. No. 2, by two men, at 3½, per fathom, worth 4½ tons per fathom. To drive the 10 west, by four men, at 6½, per fathom, and a tribute of 5s. in 1½; the lode is 2 ft. wide, and worth 2 tons of ore per fathom. To stop the back of this level, by six men, at 3½, per fathom; the lode is worth 4 tons of ore per fathom. We have also set the following tribute pitches on Markes' and Rosedown lodes:—One pitch in the back of the 80 on Markes', by four men at 13s. 4d. in 1½. Three pitches in the bottom of the 80 on Markes', each 10 ft. 4 in. wide, at 13s. 4d. in 1½. One pitch in the back of the 60 ditto, by two men, at 13s. 4d. in 1½. One pitch in the back of the 60 ditto, by two men, at 10s. in 1½. One pitch in the bottom of the 20 ditto, by two men, at 13s. 4d. in 1½. Two pitches in the bottom of the 10 ditto, by two men, each at 13s. 4d. in 1½. One pitch in the back of the 10 ditto, by two men, at 11s. 6d. in 1½.

MEDLYN MOOR.—J. Frisk, Oct. 24: North Lode: The lode in the east end is not quite as large to-day, but we think it will open out to its usual size in a day or so; these changes are only temporary in this soft ground. In the 28 end the lode is improving, and from appearance is likely to be a better one than ever we have seen it.—No. 1 South Lode: In the 33, east of flat-roof shaft, the lode is producing some rich stones of tin, and by our next setting-day we shall be in a position to judge if the bunch of tin driven through in the level above goes down. All our surface operations on the mine and at the stamps go on satisfactorily.

MELLIANAR.—John Gilbert, Oct. 23: The lode in the 30, west of the cross-cut, west of Gundry's shaft, is 2 ft. wide, and worth 1 ton of copper ore per fathom. The lode in the 40, west of shaft, is 5 ft. wide, and worth 5 tons of ore per fathom. The rise in the back of this level is worth 4 tons of ore per fathom. The lode in the 40, west of shaft, is 3 ft. wide, and worth 2 tons of ore per fathom. The rise in the back of this level is also worth 2 tons of ore per fathom. The lode in the 60, west of shaft, is 3 ft. wide, and worth 2½ tons of ore per fathom. The winze in the bottom of this level is worth 2½ tons of ore per fathom. The lode in the 70 fm. level, west of shaft, is 5 ft. wide, and worth 3½ tons of ore per fathom, and the ground is very favourable for driving. The winze in the bottom of this level is worth 2½ tons of ore per fathom. The lode in the 80, west of shaft, is 4 ft. wide, and worth 1 ton of ore per fathom; the ground is better for driving, and letting out a little more water. The lode in the 90, west of shaft, is 5 ft. wide, and worth 1 ton of ore per fathom. The lode in the 100, west of shaft, is 6 ft. wide, and worth 1 ton of ore per fathom. The lode in the 100, east of shaft, is 5 ft. wide, and worth 1 ton of ore per fathom, and letting out a large quantity of water. The lode in the 100 fathoms level, west of the skip shaft, is 3 ft. wide, and producing some good saving work for copper ore. The masons and carpenters are making very good progress with the new counting house, and we have also commenced about the engine-house for the new crusher, &c. All our machinery and pitwork are in good working order, and the water is kept with comparative ease. The old engine is now going about as well as strokes per minute.

MINERAL CORPORATION OF GREAT BRITAIN (HAFNA MINE).—Wm. Bennetts, Oct. 24: The lode in No. 1 adit end has very much improved during the past day or two; there is a nice branch of lead in the bottom part of the end, and it appears to-day to be fast rising towards the roof of the level. The stop in the back of No. 1 adit is looking well, and worth fully 30 cwt. of lead per fathom; this is the stop where the large rocks of lead came from that I mentioned in my last report, and I am glad to report that we broke rocks of lead yesterday. The lode is good, and we have got the shaft through from surface to No. 2 adit, which has well ventilated this part of the mine, and opened up a large piece of ground. I will pay well for stopping for lead in the 30 adit level, and put them to drive a cross cut north of No. 3 level, so as to intersect the main part of the lode, which has not been seen for the last 55 fms. driven. This cross-cut will intersect the lode just under the shaft that is sunk in the bottom of No. 1 adit, where the lode is worth from 2½ to 3 tons of lead per fathom. In No. 4 adit we have cut through the lode, which is 10 ft. wide, and is as fine-looking a lode as anyone can wish to see at the depth where the lode is intersected. We have to-day commenced driving west of the south part of the lode; the part we are driving on is 4 ft. wide, all of which is to be used for the dressing floors. I have to-day been down by a rope into another shaft that has been sunk in the most westerly part of the mine, and I find there is a good lode of lead standing in this part of the mine. The above shaft, I shall at once commence to clear up. This speaks well for High Hafna Mine. In conclusion, I beg to state that the Hafna Mine is opening out far beyond my expectations. I always believed it to be a good mining property, but I never expected to find it nearly so good as it is.

MONYDD GORDDU.—James G. Green, Oct. 24: I am glad to inform you that we have a good improvement in the 24 end, driving west. The part of the lode is very ugly and wet, and is yielding some splendid lumps of solid lead and blende, coated with carbonate, lime, &c. No other change. We have shipped the 20 tons of lead sold on the 19th, and have sampled another 20 tons for sale on the 26th inst. Machinery all working well.

MORFA DU.—T. Mitchell, Oct. 24: The lode in the bottom level continues to look very well, and yielding good bluestone. The men are making good progress in sinking the winze, and hope to get a hole through to the level below by the end of this month.

PANDORA.—H. Nottingham, Oct. 23: We have the water down to the back of the 23, but it will take us a day or two to clear the levels, so as to commence driving shaft; however, we hope, all going well, to get into regular work these levels, and be able to get sufficient stuff to put the dressing pile in bottom again in another week, and the week after be able to resume work in the bottom levels. Everything is working well. In waiting for the new pumping gear for the engine (which is now on the mine) we have been engaged in repairing. We work of putting the crushing and jiggling machinery in the two new levels. We have gone over everything now, inside and out, and have put a new floor in the crusher house, which was much needed; so that we are now in good trim for the work now awaiting us.

PARK MINE (Miners).—S. Mitchell, Oct. 22: West Shaft: The vein in the

stopes over the 130 yard level, west from Bolland's sump, is worth 3 tons of lead ore per fathom, worked by 10 men, at 40s. per ton of lead ore. The vein in Hill shaft, sinking under the 130 yard level, is 3 ft. wide, composed of limestone and spar, with a good mixture of lead ore and blende. In the 225 yard level, driving west from Belmont's sump, the vein is 2½ ft. wide, yielding good lumps of solid lead ore and blende in promising mineral ground, and the end letting out a feeder of water.—New Shaft: The 235 yard cross cut, west from new shaft, is now being pushed on with all possible speed to lay open the Park vein, which we expect to reach in a week or nine days; this will also make a direct communication with the Wray level and in the veins southward from this shaft. The new south vein in the end of Miners day level (235 yards from surface) is 4 to 5 ft. wide, composed of black cherty rock and spar, with a good mixture of blende and lead ore, very promising for an early improvement. The tribute bargains throughout the mine are producing fair quantities of ore, and the prospects, on the whole, very encouraging. We sold on Friday last 30 tons of lead ore and 20 tons of blende, realising 373s. 15s., and have 90 to 100 tons of calamine on the mine ready for sale.

PARYS MOUNTAIN.—T. Mitchell, Oct. 24: We have nothing new to report in the 90 south this week; the ground continues to look much the same as for some time past, intermixed with small veins of mineral. Saturday next will be a mining day.

PATELEY BRIDGE.—Charles Williams, Oct. 24: In the 30 east, on Rake vein, we have cut into a large fissure or cavity, from which a strong stream of water is issuing out, carrying with it large quantities of veinstuff and small prill of ore; judging from this very favourable indication, an important change for the better may soon be expected. The vein in No. 2 stop, in the back over this level, 20 fms. east of engine shaft, is 4 ft. wide, and worth 1½ ton of lead ore per fathom. A tribute pitch in the back of ditto is worth 1½ ton of lead ore per fathom. A tribute pitch in string under east is worth 1½ ton of lead ore per fathom. The Rake vein, in the 20 east, is 4 ft. 6 in. in width, consisting of fluor spar, gossan, and good stones of ore occasionally, and very promising. The Lumb vein, in the 20 west, is from 4 to 5 ft. wide, producing fine boulders of lead ore, worth 12 cwt. per fathom. The tribute pitch in Fielding's vein is worth 1 ton of lead ore per fathom. The vein in Pringap level is 6 ft. in width, consisting of quartz, carbonate of lime, gossan, and good branches of ore, and improving. We sold on the 18th inst. 25 tons of pig-lead (exclusive of dues) for 362s. 10s. Smelting is proceeding favourably.

PENHALLS.—S. Bennetts, P. Vian, Oct. 19: The north part of the lode in the 70 east end is not so thin as last reported; at present worth 6s. per fathom. The west end on the same section of the lode is worth 7s. per fathom. The 60 east end is worth 6s. per fathom. The 55 east, on the south part of the lode, is worth 7s. per fathom, and the 43 west 7s. per fathom.

PENNANT.—Oct. 24: We have weighed out 6 tons 10½ cwt. of lead, nearly all from our new discovery.

PENRUTHAL.—W. Polkinghorne, Oct. 24: The ground in the 85 fm. level, driving east and west of Highburrow shaft, is much the same in character and appearance as last reported. The lode in the 72, driving west of Highburrow shaft, is 3 ft. wide; within the last few feet driving we have met with a small cross-course which produces good work for tin. In the rise in the back of the 72, copper ore, but producing good work for tin. In the rise in the back of the 72, west of shaft, the lode is 3 ft. wide, and yielding about 1½ ton of copper ore per fathom. The lode in the rise in the back of the 72, east of shaft, is small and of no value. The lode in the 34, driving east of Highburrow shaft, is 2½ ft. wide, and worth for tin 6s. per fathom; a very promising end. In the 45 cross-cut, driving south-west of Highburrow shaft, we have met with nothing worthy of remark since last report.

PRINCE OF WALES.—John Andrews, Oct. 23: The tributaries in the back of the 24 are working on much as usual, and are still raising silver ore, but there is little or no change in the pitch from week to week. The assay of the tributaries' silver ore gives 770 ozs. of silver to the ton.

ROMAN GRAVELS.—A. Waters, Oct. 24: Good progress is being made in sinking the new engine-shaft below the 110 fm. level. The 110, north of new shaft, is in a strong, fine lode; worth 1½ ton of lead ore per fathom. The 110, south of shaft, is in a lode 2½ ft. wide; worth 1 ton per fathom. The 65 south is opening out a strong, wide lode; worth at present 3½ tons per fathom; price for driving with boring-machine, 9s. 10s. per fathom. We are stopping in back of this level, south of 80s., and 2 winzes, each worth 3 tons per fathom. The well. The 80, south of shaft, is 2½ ft. wide, and worth 3 tons per fathom. In this level, south of Wilkie's and Matthews' winzes, are yielding ore in profitable quantities. The 65 south is in a wide lode, the part being carried worth 2 tons per fathom. The stopes in back of this level are yielding their usual quantities of lead ore. We are sinking a winze in this level at present by the side of the lode and rich course of ore. We shall get into the lode in a fathom or two further sinking. We have at present to avoid interfering with the tram-road. This winze is going down in front of, but in readiness for the coming up of the 80 fm. level. There is no change in the pitch from the last week or two. No other change in the mine worthy of remark. The 180 tons of lead ore sold today realised 1804s. 10s., and 30 tons blende 74s. 10s.

SAINT PATRICK.—William Francis, Oct. 23: The cross-course in the 120 yard level north still holds to the westward, and is filled with friable clays, mixed with spar and gossan and other matter of the most kindly description. The chert driving in the 60 north shows some signs of coming into easier ground for driving, and is still in good bearing measures for ore.

SOUTH CONDUROW.—W. Rich, W. Williams, H. Abrahams, Oct. 23: The rise in the back of the 93 east is worth 10s. per fathom. The rise in the back of the 93 west is worth 12s. per fathom. The 90 east is unproductive. A rise in the back of this level is worth 15s. per fathom. We are pushing on the 70 east to communicate with the rise referred to; the end is yielding low quality tinstone. The 70 end, west of Plantation shaft, is worth 8s. per fathom. We have commenced to sink this shaft below the 70; the lode in the bottom is worth 10s. per fathom. The rise in the back of the 60 east is unproductive, but the lode looks promising to improve. The winze in the bottom of the 50 east, over the rise mentioned, is worth 8s. per fathom. The 50 end, east of King's, is worth 10s. per fathom. The 50, west of King's, is worth 8s. per fathom. The rise in the back of the 50 west is worth 30s. per fathom. The 50 end, west, towards Plantation shaft, and the 50 east of this shaft, are both being driven on the north part of the lode in easy ground; these ends at present are yielding very little tin. The 50 end, west of Plantation shaft, carries low quality tinstone. The 40, east of engine-shaft, is worth 6s. per fathom. The 40 west is worth 6s. per fathom. The 30, west of engine-shaft, is unproductive. The 30 east is worth 9s. per fathom.

SOUTH DAKEN.—Henry James, Oct. 24: Setting Report: To cut ground for the elstern at the 100, lift in same, timber up and make trip-lode, put in the necessary timber at the 90, divide down in shaft, and put in trip-lode from the 100 to the 100. The 100, south of shaft, to drive by six men, at 9s. 10s. per fathom; the lode is 18 in. wide, worth 18 cwt. lead ore per fathom, and improving. The 100 end, east from 90 winze, to drive by six men, at 10s. 10s. per fathom; the lode is worth 40s. per fathom. The 90 to drive west, by six men, at 9s. 10s. per fathom; this end is driving by the side of the lode, ore still showing close to the end, but it is not quite so rich as it has been; the value will be given when it is again taken down. No. 1 stop, in high, for four men, at 3s. 5s. per fathom; the lode is worth 40s. per fathom. The 50 end, west, in back, east from winze, by four men, at 3s. 15s. per fathom; lode worth 25s. per fathom. No. 3 stop in back, west from winze, by four men, at 3s. 17s. 6d. per fathom; the lode here is of a very fluctuating character, and the present value 40s. per fathom for width of lode. The 80 end men are taken back in the level to drive through a flat joint—the point where the lode is disturbed—by four men, at 6s. per fathom. No. 1 stop in the back of this level, east from winze, by four men, at 3s. 5s. per fathom; the lode is worth 20s. per fathom. No. 2 stop is suspended. The cross cut to drive in the 70, by two men, at 4s. 10s. per fathom. The raising of stut to shaft, by six men, at 8s. 10s. per fathom. The filling of the skips by six men, at 7s. 9d. per 100 skips. The drawing and landing, by four men, at 7s. per 100 skips. The drawing and dressing progressing satisfactorily.

SOUTH DEERBY MOUNTAIN.—Thomas Bennetts, Oct. 24: In the No. 1 adit the men are making fair progress in driving the cross-cut towards the large lode. In the No. 2 adit the men are making good progress in driving by the side of the lode; the end is very wet. The rise in the back of No. 1 adit is communicated to surface, which has well ventilated this part of the mine, and as soon as the men have completed the timbering we shall commence tripping the lode. No. 1 lode. The large lode is looking very well, especially in the bottom part of the end, which speaks well for deeper levels; we have always had the better lead in the bottom part of the ends.

SOUTH ROMAN GRAVELS.—John G. Powning, Oct. 24: Since my last report we have been obliged to put larger pipes from boiler to surface to take the draught, and have again started the engine to work. I am glad to inform you that we seem to be over the smoke difficulty. The water will soon be out of wind, and the men sinking. I will write particulars as soon as depth is attained.

SOUTH TOLCARE.—Wm. Rich, James Knotwell, Oct. 23: The lode in the 24 end is 2½ ft. wide, composed of fluor spar and stones of copper. The lode in the 26 end is gradually increasing in size, and carries spots of ore.

TALYHOUST.—T. Granville, Oct. 22: North Side of Mountain: The lode in the 24 end is 2½ ft. wide, and will yield 10 cwt. of lead ore per fathom. The lode in the 26 end is gradually increasing in size, and carries spots of ore.

TANKERVILLE.—A. Waters, Oct. 24: Watson's shaft is now 8 ft. below the 2½ country rock being of a congeal character, well mixed with branches of carbonate of lime, which from their position look like droppers to the lode. The 2½ end is driven 6 fms. 4 ft.; lode 4 ft. wide, worth 1 ton per fathom. There is a strong flow of water coming from the hanging side of the lode here, and we are hoping to meet with a large cavity soon. The 206 east is driven 14 fms.; lode of the line of No. 2 winze. The 206 east is worth 2 tons per fathom. This end is now within 3 fms. of the 206. The 206 east is worth 2 tons per fathom, and No. 3 stop is worth 2 tons per fathom. The 206 west of shaft is worth 1 ton per fathom. The new winze in the 192 west is down 9 ft.; the lode is worth 2 tons per fathom; 30 to 40 fms. west of shaft at the said 192, and will be met with three stopes in back of the 206. I look upon this as a new west bench of ore. The 62 cross-cut, south of the 192 west is worth together 3 tons per fathom. The 62 cross-cut, south of old lode, is driven about 10 fms., the last 3 ft. being through a kindy sparry ore-lode, which is almost, if not quite, in the line of the Tankerville lode proper. We shall drive east of the lode here forthwith, and hope to be able to speak of its value next week. The tribute pitches as for some time past.

TAN-YR-ALLT.—John Davis, Oct. 24: The end on the 22 north is improving; with a little lead, not yet to value. The No. 1 stop has improved greatly as we rise of the lode being about 15 in. wide, the whole of the rest of the lode being good for the crusher; in fact, we cannot take the lead there without we put in another bundling; we shall sample 10 tons on Saturday. The dressing and pumping machinery working well; water plentiful.—Setting: The No. 1 stop, at 21 fms. 10 in. north, at 21 fms. to a fathom—say 37s. at present prices. The 22 driving lode 26 cwt. to a fathom. The stopes in the 12, at 21 fms. 10 in. north, at 21 fms. to a fathom—say 12s. We shall commence to sink to the 22 on either of the levels. At surface the works are progressing as rapidly as the weather will permit. Several violent storms have occurred during the past week.

VAUGHAN.—Oct. 23: The cross cut south at the deep level east was extended during the past month 1 in. 5 in. through wet and stiff ground for exploring; the lode in present end is a little easier for driving, being composed of a light clay, slate and carbonate of lime; unproductive for lead ore. The 30, west of cross cut on south part of lode, has been driven 2 fms. in a productive lode, yielding on an average 15 cwt. of lead ore per fathom, while in the present forebait the lode is disordered by a cross-joint and become unproductive, which we hope to be only temporary. The stopes throughout the mine are without change to notice.

WEST CRAVEN MOOR.—David Williams, Oct. 24: Blackhill Level: I have set a pair of men to cross-cut south from the end of this level to intersect the ore-bearing part of the vein, which is still on that side of the level. In the rise in the back of the 42 we just intersected the vein above the flat lode, which at present is 4 ft. wide, filled with gossan and solid rocks of galena; worth 20 cwt. per fms. and promising for a further improvement. The stopes throughout the mine are of the same value as reported in my last. We have a parcel of ore in course of smelting at the mill.

WEST GODOLPHIN.—John Pope, Oct. 23: In the 80 we have commenced to open west on Wilson's lode, which is of great width, and producing some very rich stones of tin. It appears to be improving as we are getting away from the counter. We are also breaking some very good tinstuff in the winze in the 70 west. The other places are just as last reported. The weather is getting very showery, so I am in hopes we shall soon have an increase of water for our stamps, which is a little now as it has been for the summer. I am hoping to be able to report something very good in the 80, also in the winze sinking in the 70 at an early date.

WEST PATELEY BRIDGE.—D. Williams, Oct. 24: In the 20, east of shaft, the vein is 3 ft. wide, producing branches of lead ore worth 15 cwt. per fathom. A stop in back of this level is worth about 10 cwt. of ore per fathom. In the 28 east the vein is further improved, being at present 3 ft. wide, and producing branches and patches of lead ore of good quality. In the 28 west we have just reached the north and south vein, upon which we have commenced cross-cutting south, to get under Discovery and No. 1 shafts. Craven Cross shaft is down 52 fms. below the surface. I hope in another three or four yards further sinking to cut the vein. The 56 is within 27 fms. of the shaft, in a vein 4 ft. wide, and producing saving work for dressing of good quality.

WEST ROSKEAR.—H. Stephens, W. Bennetts, Oct. 24: The lode in the 36 west is much the same as last reported, driving by six men, at 3s. per fathom. The 36 east, on counter lode, produces a little blende. Here we expect an improvement soon. Driving by six men, at 5s. per fathom. The lode in the 24, driving west, is improving, containing good stones of silver-lead, with a great quantity of mundic; driving by six men, at 3s. per fathom. The lode in the 24, east and west of Stephens' shaft, contains a good mixture of copper and lead, with fine rocks of tin, opening good tribute ground; driving by six men, at 4s. per fathom.

WEST TANKERVILLE.—Arthur Waters, Oct. 24: The 88 shaft is going forward in a strong lode, worth at present 1 ton of lead ore per fathom. We are leaving a portion of the lode on the footwall side of the drive, which we shall shoot down this week, and hope to find it productive. The first stop in the back of the lode, south of the 88, is at present, at 10 fms. from the 88, a cross-cut, yielding stones of ore. We shall get into more productive ground as we go forward. No. 3 stop is worth 1 ton per fathom. The stop in the bottom of the 63 south is worth ¾ ton per fathom. The stop in the bottom of the 50 south is also worth ¾ ton per fathom. By this post we send out samples of 20 tons of lead ore for sale next week.

WEST VOR.—S. Harris, Oct. 25: During the past week we have sunk the shaft 3 ft. in the lode continues about the same as last reported. In the rise below we have raised 4 ft.; the lode still produces stones of tin. We are making fair progress.

WEST VOR.—S. Harris, Oct. 25: During the past week we have sunk the shaft 3 ft. in the lode continues about the same as last reported. In the rise below we have raised 4 ft.; the lode still produces stones of tin. We are making fair progress. The 22, east of shaft, is at present, at 10 fms. from the 88, a cross-cut, yielding stones of ore. We shall get into more productive ground as we go forward. No. 3 stop is worth 1 ton per fathom. The stop in the bottom of the 63 south is worth ¾ ton per fathom. The stop in the bottom of the 50 south is also worth ¾ ton per fathom. By this post we send out samples of 20 tons of lead ore for sale next week.

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TO THE METAL TRADE.

FOR COPPER, TIN, LEAD, &c., apply to—
MESSRS. PELL, BOYLE, AND CO.,
SWORN METAL BROKERS,
ALLHALLOWS CHAMBERS, LOMBARD STREET, LONDON.
(ESTABLISHED 1849.)

The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, OCT. 25, 1878.

IRON.			£ s. d.			£ s. d.			TIN.			£ s. d.			£ s. d.		
Pig, 6000, f.o.b., Clyde.	2	3	9				English, ingot, f.o.b.	61	0	0	61	0	0	61	10	0	
" Scotch, all No. 1	2	5	6			10 0	" bars	62	0	0	62	0	0	62	10	0	
Bars, Welsh, f.o.b. Wales	5	0	0			0 0	" refined	63	0	0	63	0	0	63	10	0	
" f.o.b. London	5	10	0	5	10	0	Australian	64	10	0	64	10	0	64	10	0	
" Stafford	6	10	0	7	0	0	Banco	65	0	0	65	0	0	65	0	0	
" In Tyne or Tees	5	5	0	5	10	0	Straits	66	10	0	66	10	0	66	10	0	
" Swedish, London	8	15	0	9	5	0											
Rails, Welsh, at works.	4	15	0			—	COPPER.										
Sheets, Stafford, in London	8	15	0			—	Tough cake and ingot.	62	10	0	64	0	0	64	0	0	
Plates, ship, in London	6	15	0			—	Best selected	63	10	0	65	0	0	65	0	0	
Hoops, Stafford	7	5	0	7	10	0	Sheets and sheathing	65	0	0	65	0	0	65	0	0	
Nail rods, Staff., in Lon.	6	0	0	6	10	0	Flat bottoms	71	0	0	71	0	0	71	0	0	
						—	Wallaroo	68	0	0	68	0	0	68	0	0	
							Burra, or P.C.C.	67	0	0	67	0	0	67	0	0	
							Other brands	64	0	0	65	0	0	65	0	0	
							Chili bars, g.o.b.	56	10	0	56	10	0	56	10	0	
							PHOSPHOR BRONZE.										
							Bearing metal	£105	0	0	£105	0	0	£105	0	0	
							Other alloys	£110	0	0	£125	0	0	£125	0	0	
							BRASS.										
							Wire	7	d.	7 1/2	d.	7 1/2	d.	7 1/2	d.	7 1/2	
							Tubes	7 1/4	d.	7 1/2	d.	7 1/4	d.	7 1/2	d.	7 1/2	
							Sheets	8	d.	8 1/4	d.	8	d.	8 1/4	d.	8 1/4	
							Yel. met. sheath. & sheets	5 1/2	d.	5 1/2	d.	5 1/2	d.	5 1/2	d.	5 1/2	
							Nails composition	8	d.	8 1/4	d.	8	d.	8 1/4	d.	8 1/4	
							TIN PLATES. per box.										
							Charcoal, 1st quality	1	0	0	1	0	0	1	0	0	
							" 2nd quality	0	19	0	0	19	0	0	19	0	0
							Coke, 1st quality	0	16	0	0	16	0	0	16	0	0
							" 2nd quality	0	14	0	0	14	0	0	14	0	0
							Black	per ton	18	0	0	18	0	0	18	0	0
							Canada, Staff. or Glas.	11	0	0	12	0	0	12	0	0	
							at Liverpool	12	0	0	13	0	0	13	0	0	
							Black Tins, 450 of 1/2	12	0	0	13	0	0	13	0	0	
							14 x 10	80	0	0	80	0	0	80	0	0	
* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; 1X ds. per box more than 10 quoted above, and add 6s. for each X. Terns-plates 2s. per box below tin-plates of similar brands.																	

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REMARKS.—Our markets have been unsettled on account of the tremendous strain brought to bear upon them by so many disastrous failures, amongst whom we are very sorry to note are some firms who have been closely connected with the metal trade. The past week has been an anxious one, and exceedingly gloomy and barren in its results. Speculation has almost ceased, and the restrictions of trade generally have become still more restricted. The feeling of distrust if anything appears to have spread rather than diminished; nevertheless, it is hoped that the worst troubles are over, although the end of them may not yet have been reached, and it will doubtless be necessary to observe extreme caution for some time to come. Rumours are continually being circulated about certain houses of doubtful standing who are supposed to be involved, and while these apprehensions last the public mind cannot be at rest. It is needless at a time like the present to aggravate the evil by exciting apprehension without sufficient foundation; at the same time people cannot be too circumspect in giving credit, and should endeavour whenever practicable to curtail their liabilities. The uncertainty which exists at the moment respecting commercial and financial affairs forbids any reliance being attached to the stability of markets, and as they are now subject to extraordinary pressure, and ordinary rules lose their force, prices are liable to violent fluctuations, and those of to-day may be very different to those of to-morrow. Business in all departments is stagnant, and prices nominal, and there is no dependence upon the one or the other.

It is most unfortunate that the interruptions to business should now be taking place, for trade, in some branches, was just recovering, and last month began to show very favourable returns indeed, and prospects had considerably brightened; but it is evident that the improvement came too late to prevent the crash, and all the advantages which would otherwise have been reaped are lost for a season. The general expectation is consequently postponed, and it will be necessary to wait the issue of events, and to ascertain the full measure and extent of the calamity before any particular movement or progress can be made. At the loss of business it is, perhaps, better to maintain reserves; and this is what the banks and merchants, and all prudent houses, are doing at the present critical period. This is the time, however, for capitalists and investors to step forward and buy, for they have an excellent chance of making immense fortunes out of other people's misfortunes. Prices are unduly depressed, and in some instances unprecedentedly low. The security, in the shape of warrants, can be looked up in their own cash boxes, and all they have to do is to quietly abide their time for realising. It is true they may be getting a good rate of interest for their money, and do not care to disturb it; but exceptionally high rates of money rarely last long, and as soon as the crisis is over money will undoubtedly become cheaper; for there are no trade demands to uphold it, and whenever the end of the difficulty can be clearly discerned, and the Bank rate is reversed, the prices of metals may be fully expected to advance; for no one would dream of selling at current rates unless forced to do so, or enabled to cover over more advantageous terms. It is, therefore, a mere question of time as to when our markets will right themselves; they have hitherto had a succession of drawbacks to encounter, for reasons which have been extricated from one disaster than they have been overtaken by another. We trust that the present evil may prove the last; and there are certainly fair grounds for assuming that it will be so, or at least that no corresponding evil of gigantic magnitude will soon again threaten us; and the experience of the past will not be lost if men would but see the absolute necessity of observing greater caution and keeping within reasonable bounds for the future. There are plenty of good things in store for us all, but they are lost sight of and forgotten amidst the prevailing troubles and anxieties.

Whatever difference may exist among us in our political opinions, the Government have for once our united and entire approval of the prompt action they have taken in arresting the board of directors and the head officials of the Glasgow Bank, for after such startling revelations as have been recently published by the examiners and investigators of the bank's accounts it would have been a scandal and a disgrace to the nation to have permitted any of the responsible parties who are implicated, or who have even connived at such nefarious proceedings, to have escaped unpunished. The fair fame of Great Britain would sink and stink if such men were not brought to justice and made to answer for the sufferings they have inflicted upon the community, and upon the thousands of honest and industrious men who are far too law-abiding, and who require a thorough revision. Hitherto there has been too great a facility afforded to dishonest traders to evade the law, and this must be stopped for the future, or else the credit of the country will suffer. The honour of England is at stake, and it must be maintained at all cost. All who take credit ought to be bound to show, in the case of insolvency or bankruptcy, afterwards that they were at the time of taking credit in a position of making good their engagement, and in the event of their failing to do so to the satisfaction of the Bankruptcy Court to be committed to take their trial for fraud.

The law must be made severe, and it must be enforced, for however severe the law if it is not enforced it is dead and powerless, and we shall be constantly having a repetition of the recent disgraceful and heartrending disclosures. Commercial men must be content to limit the extent of their transactions, and confine them within reasonable amount, and in proportion to their capital. There will be no security to the honest trader until it is known that anyone accepting credit under false pretences will be visited with the utmost rigour of the law, and that law should be the forfeiture of all property, and no commutation or final release before the whole liabilities have been honestly paid in full. Severe cases require severe remedies. The innocent are not afraid of laws, as they are made for their special protection and benefit. The law is only intended for the lawless and the pests of society. Let us have honest and just dealings with one another and there will be nothing to fear from the terrors of the law. The terms of purchase for some metals are much more stringent than formerly, and it would be better that the whole trade adopted one principle—namely cash payments against notes, receipts, or delivery orders; let the banks do the rest of the business. The merchants do not object to the terms in copper, which is one of the dearest, and generally runs into much money, and, therefore, if other sellers would follow the example of the copper smelters in this respect there would be very few losses incurred by way of bad debts. The percentage of profit on commission is now so very small that business does not admit of the slightest risk.

COPPER.—An immense sensation was created in our market last Saturday upon the announcement of the failure of Messrs. James Sawyers and Co., known to be very largely interested in this metal, and intimate connections of the late Mr. Elward of Valparaiso. Sellers immediately offered to sell Chili bars at 56½, but no transactions were reported. Subsequently it transpired from Liverpool that the firm in question held 1000 tons of copper, and that Mr. Edwards' interest might be endangered, in which case there might be a very severe pressure put upon the market, prices consequently again gave way, but buyers were so completely staggered that at first they declined to operate, but business eventually resulted at prices kept secret. At the same time there have been all sorts of rumours to the effect that one lot of 1000 tons, and another of 500 tons had been turned over at 54½, and even 53½. The latter appears to be somewhat doubtful, but the former is asserted in a more positive manner. We do not touch for either statement, but whether they are correct or not it is a matter of little moment to the public, for they would be arrangements of a special character, and, therefore, not affecting the general quotation. The committee on Thursday reported the nearest value of Chili bars at 56½, and as they have not referred to the business removed at the lower prices, the assumption is that they are wanting in confirmation, or that they attach no importance to them.

But it is no great matter after all whether 15 000 tons of copper have been disposed of at a lower rate, for if that is a portion of the 9000 tons, then what is to become of the remaining 7500 tons. It is the disposal of the balance in which buyers are more particularly interested, or, if the 15000 tons do not form part of the 9000 tons, then what arrangements will be made with regard to this quantity. Of course a sale of 1500 tons outside of the 9000 tons would reveal weakness elsewhere, and

there would still be the full 9000 tons to deal with hereafter. While any doubt remains about the subject the market will continue undecided, and the matter should be cleared up as quickly as possible. The trade would be perfectly satisfied if they knew that the market was safe from any forced sales, and it would be the height of folly to sell copper at these ridiculously low prices for any other reason than that of actual necessity, but although buyers may be aware that the present value is below cost of production, yet that affords them no security against a lower price if there is a large quantity of copper in weak hands which may be realised, and naturally enough they wish to be guarded against buying on a falling market. To restore confidence it is necessary that some reliable statement be made in regard to the bankrupt's stock of copper. It must be sold there are buyers ready to take it all up at a price, and the sooner it is all disposed of the better. On the other hand, if it is not for sale it would be a great benefit to the market to have it published, in order to dispel the present fears and apprehensions of buyers.

IRON.—The demand is extremely limited, and prices for manufactured are easier. English and Staffordshire qualities are reduced about 5s. per ton. English merchant bars are now procurable at 5½ 10s. forward delivery, and Staffordshire ordinary best 7½ f.o.b. London, common brands 5s. to 10s. per ton less. Swedish bars are also slightly lower. The fall in the Indian rate of exchange makes a great difference in the number of orders given out, and the works must be getting short of Indian specifications, and unless sellers are willing to submit to further concessions there will be scarcely anything doing for India for a long time to come. As long as the market is not badly off in regard to Indian orders, but the season is now so rapidly drawing to a close that it will very soon be too late to effect shipments to the northern ports, consequently in about three or four weeks the demand will be on the decline, as the export trade will have considerably diminished, and by the end of November we shall be entering upon the dulllest part of the year, and December invariably proves a slack month for iron, for not only is the weather at that time against all outdoor work, but consumers do not care to order for stock until after Christmas, and merchants prefer letting the year run out before making fresh contracts of any magnitude.

The immediate prospects are, therefore, unfavourable for this metal, especially as in addition to ordinary influences of a depreciatory character, there is the great shock to, and awful collapse of, commercial credit, which must be taken into account, and the severe check thereby given in the legitimate and speculative demand. The shipments of Scotch are larger this week than they were at the corresponding week of last year, which is so far an encouraging feature, but would probably not have happened if prices had not been so much reduced. Any advance in prices would most likely at once destroy the improvement, but as makers' iron is said to be still tending downwards there is no fear of speculation doing any mischief. As long as the market meets the demand, and it is very important that there should be no obstacle thrown in the way of shipments just now, otherwise the opportunity of sale will be lost for the season. Speculators can do harm only to themselves, which is of no consequence to the trade. Every facility should be afforded shippers to execute orders, and shipments should be pushed forward as fast as possible. There is evidently hard times to be borne by the iron trade, and the ensuing winter will, doubtless, be a very trying one to all parties. As there is little or no hope of amendment, it would be better to prepare for the worst, and make suitable arrangements to meet the altered state of affairs, as it is useless to attempt to swim against the stream. The price of Scotch pigs is now quoted 45s. 9d. n. cash.

PHOSPHOR BRONZE.—
Other alloys £110 0 0—125 0 0
BRASS.
Wire 7 d. 7½ d.
Tubes 7½ 7½
Sheets 8 8½
Yel. met. sheath. & sheets 5½ 6½
Nails composition 8 8½
TIN PLATES, per box.
Charcoal, 1st quality 1 0 0—1 2 0
" 2nd quality 0 19 0—1 0 0
Coke, 1st quality 0 16 0—
" 2nd quality 0 14 0—0 16 0
Black, Stafford, or G.B. 10 0—16 10 0
Canada, Staff., or G.B. 11 0 0—12 0 0
at Liverpool
Black Taggers, 450 of 14 x 10 30 0 0—

For the week ending Oct. 20, 1878..... Tons 9,994
For the week ending Oct. 19, 1877..... 9,956

Increase..... 1,038
Total decrease for 1878..... 52,991

Imports of Middlesbrough pig-iron into Grangemouth:—
For the week ending Oct. 19, 1877..... Tons 5,687
For the week ending Oct. 20, 1878..... 4,655

Increase..... 932
Total increase for 1878..... 2,224

FURNACES.
In blast Oct. 20, 1877..... 87
In blast Oct. 19, 1878..... 92

The accounts from Sheffield still continue of the most unsatisfactory description, and future prospects are referred to in the most despairing manner. The mills are not half employed, and the masters are necessitated to effect further reduction in wages; this will prove a very hard upon the men, but the trade is in such a deplorable condition that unless they choose to accept it there will be no better employment than that of breaking stones upon the roads. The winter is looked forward to with great amount of anxiety, as the small wages the men earn will be very inadequate to provide extras against the inclemency of the winter. Coals, however, are very cheap, and deficiency of food will not be felt so much if cheap firing can be obtained. A fair suggestion seems to have been made by the coalmasters of South Staffordshire—that if the miners were willing to work an extra hour per day the masters would give 6d. per day extra to thick coal men and 3d. to thin coal men. The proposition seems not unlikely to be accepted by the miners. These terms are better than reducing wages, for the men can better afford to forego time than money, or, in other words, the men will only have to work a little longer for their pay. The advices from Middlesbrough describe the market as dull and weak in tone; prices have slightly receded, No. 3 iron being quoted 37s. to 37s. 3d.; the transactions are limited, but the reduced price of Scotch pigs has not affected shipments to Grangemouth, which continue fully equal to those of last year, but it is expected that if the price of Scotch pigs is brought nearly upon a par with those of Middlesbrough that a sensible diminution will be in course of a little time take place.

The demand for iron there is an absence of orders, but plates are still quoted 61 to 61 2s. 6d. Steel rails are low in price, and good orders would probably not be refused at 5½. Notices of a further reduction in wages have been given in a few works, and it is supposed they will be general throughout the district. The reports from the Welsh districts do not improve, and they are equally gloomy as from any other parts of the kingdom. Stocks are estimated to be large, and the demand being so greatly reduced will not help to mend matters. The orders for both rails and bars have diminished, and the whole trade of the district appears to be on the decline. Shipments for the past month, however, do not compare unfavourably, but both this and next month will probably show a considerable falling off. The state of trade throughout nearly all the other iron districts of the country is quiet, amounting in some instances almost to stagnation; and it will take a long time before any general recovery takes place—certainly some few months, and in all probability not before the ensuing spring will there be anything like a revival; by that time things generally may have settled down into their proper groove, and some permanent increase in the trade of Great Britain may be expected.

TIN.—Notwithstanding the agitated state of other markets, and the depression in business generally, this market has preserved wonderful steadiness throughout the past week, and has even assumed an upward tendency. The prices are well supported, not only by the most energetic and influential dealers, but consumers are buying, and the deliveries for the month are expected to be good. In all probability the prices of the tin proximo will compare favourably, and a marked improvement may shortly ensue. The whole stock of tin cost more than the present price; and, therefore, all holders who are not forced to realise are very unlikely to sell in a panic, especially when there are two or three features in connection with it of a decidedly favourable character. The weak holders are out of stock, and there are open contracts to the end of the year, which may have to be covered at much higher rates, for there is difficulty already in buying anything more than small lots.

The turn which has taken place in the market has completely checked all operation for a fall, and there is a general expectation of looking for higher prices. The disturbed state of the City may prevent the recovery being carried on with the rapidity that the improved features of the market deserve, but sellers will probably prefer under the circumstances not to hasten events, and by pursuing this course their position will be rendered all the more safe and permanent. There is no occasion to hurry on with that which of itself will develop in due time, and it is sufficient, perhaps, to know that fair and satisfactory progress is being made; a gradual and steady rise possesses the best chance of becoming permanent.

QUICKSILVER is without change in price, and featureless.

THE IRON TRADE.—(Griffiths's Weekly Report).—Friday evening. The Glasgow market for Scotch pig-iron has been quiet throughout the week. On Monday the price of g.m.b. was 43s. 9d.; on Tuesday and Wednesday, 44s. to 44s. 15d. On Thursday there was no market on account of the public holiday; and on Friday the market was easier, with business at 43s. 10d. to 43s. 9d. cash, closing steady, with buyers at 43s. 9d., and sellers at 43s. 10d. cash, a full sale last Friday of 31 per ton. We quote makers' No. 1 iron—Gartsherr, 51s. 6d.; Coltness, 53s. 6d.; Langoon, 53s. 6d.; Summerlee, 51s.; Monkland, 51s. 6d.; f.o.b. Glasgow; Glengarnock, 49s. 6d.; Eglington, 45s.; f.o.b. Ardrossan; Shotts, 54s.; f.o.b. Bo'ness.

The excitement consequent on the stoppage of the City of Glasgow Bank has now toned down, and although the Glasgow market continues flat, there is certainly a better feeling. In Cleveland there is no improvement in the demand for pig-iron material, the market is weak; makers prefer storing their iron to selling at present prices, believing there will be a reaction shortly. In the south St. George's district a fair stroke of work is being done by the leading houses, but second-class makers are wanting orders. At Birmingham yesterday only a moderate business was transacted, either in pigs or finished iron. In the tin-plate trade there is a firmer feeling, and hopes are entertained that there will speedily be a movement in prices.

MESSRS. FRY, JAMES, AND CO.—COPPER: The suspension of payments by one of the principal importers of Chili copper has caused a general reduction in the quotations for all descriptions, and a very small amount of business has been transacted, buyers being unwilling to act until it is known what course will be pursued with the stock of the firm above alluded to, and estimated to be equal to about 10,000 tons of pure copper. The market has not been affected in the day, and to-morrow a sudden rise about 2s. week since, when up to 56½ was freely paid for fine foreign, both "spot" and "arrival"; this price has hardly been maintained since, a fair quantity has changed hands down to 55½, but the market is again firm at the close.—SPELTER is again rather lower.—LEAD is rather lower in price, and extremely dull.

MESSRS. BROOKER, DORE, AND CO.—IRON: The past month will probably be remembered as the dulllest month in an exceptionally bad year, and under the depressing influences of the Glasgow Bank failure and the mercantile failures immediately resulting, prices of almost all raw metals have considerably receded. As regards finished iron the utmost concession which has been offered by makers since the quarterly meetings amounts to 2s. 6d. per ton, and this concession is only made possible by the reduction which has just been effected in the day workers' wages. As soon as confidence is restored we shall possibly profit by a cessation of reckless trading and business will be carried on with more chance of success than has been possible while so many insolvent firms have been competing against legitimate business enterprise.—BALDWIN'S IRON: The reduction referred to in our last circular has increased the demand, and Messrs. E. P. and W. Baldwin are fairly supplied with orders.—GALVANISED IRON: The demand has fallen off, and as some of the colonial markets are somewhat overstocked we fear it will not immediately improve. There is not much cause, however, for anxiety as to

the future of this branch of the trade, as galvanised corrugated iron is coming into greater favour daily for roofing purposes, and fresh markets are opening up.—LEAD has continued to decline; the market closes flat.—ZINC also easier.—SPELTER has receded to the extent of 12s. 6d. to 15s. per ton.—FENCING WIRE: During the month a reduced list has been issued by the Warrington houses, which simply makes their list more nearly agree with actual quotations. The printed list was quite nominal before the alteration. The demand is improving for some markets, and we hear of complaints as to the quality of foreign wire, which will tell in favour of the English makers.

MESSRS. FIXLEY AND ABELL.—GOLD: The receipts of gold coin from Paris have continued during the past week, and, as there is but little demand for export, the Bank has purchased the greater part of the arrivals, amounting to 1,194,000, since our last circular: 100,000 sovereigns have been withdrawn for Constantinople, and 200,000 in German coin for Berlin. The Poonah has brought 41,800, from India, and the incoming steamer, due on the 25th inst., is bringing 535,600, from Australia, &c.—SILVER has continued steady at the low price mentioned in our last, and several small parcels from America and Swansea were sold at 49½d. per oz. for the Continent. The last day or two has witnessed a better demand, and the price has improved to 49 15d., at which rate the silver by the Pacific steamer Iberia has been placed, and the market is firm at this quotation. We have received about 92,000, from the Pacific, and 35,000, from the United States. There are no shipments to India by the steamer leaving Southampton to-day.—MEXICAN DOLLARS: The greater part of the dollars brought by the French steamer, 95,000, in value, were sold at 48½d. per oz., showing a further decline in price of 1½d. per oz.

Just as we had closed our article last week, and had expressed surprise at the "unaccountable" action of the smelters in putting down the standard for tin ore 2½ per ton the week before, and when as we had understood tin itself was firmer, information reached us that they had again met and put up the standard 2½, thus nullifying the act of their previous meeting. When this became known there was a little spurt in the MINING SHARE MARKET, but it soon died away, and general depression set in.

The Glasgow Bank failure, with its wide-spread ramifications and its attendant and disastrous consequences, has affected general as well as all speculative business; for no one can tell at present when commercial failures will cease. And as in the absence of buyers everyone seems desirous of selling, prices are knocked down, and disappointment ensues without any resulting business. Shareholders, therefore, who do not absolutely require money, only injure themselves by bringing down prices when they force sales in times like these, and when dealers are full of stock and the public are not investing. Sellers, however, are not confined to mining shares, but to banks, railway shares, and every description of stock, and it may take a week or two to get the market into a more settled state.

TIN MINES have been firmer in quotations since the rise in the standard, but there is no actual business doing. Carn Breas are quoted 30 to 32½; Cook's Kitchen, 5s. to 10s.; Dolcoath, 23 to 25; East Pool, 8 to 8½; Penrithal, 3s. to 5s. Wheal Uny, 4½ to 4; at the special meeting, on Tuesday, a call of 8s. 6d. per share was made. South Condurrow, 10 to 10½; South Frances, 4½ to 4½; Tincroft, 6 to 7; West Basset, 1 to 1½; West Frances, 1½ to 1½; Wheal Grenville, 2 to 2½; Wheal Kitty (St. Agnes), 1 to 1½; Wheal Peewor, 6 to 6½. Wheal Agar, 3½ to 4; at the meeting a call of 10s. per share was made.

COPPER MINES are totally neglected, and quotations nominal. Devon Great Consols are flat at 1 to 1½. Parys Mountain, 4s. to 6s.; no change here. Morfa Du, 15s. to 17s. 6d. Wheal Crebor, 3½ to 3; we understand that at the meeting a small call of 1s. per share will be required. The copper sales would have left a good profit at the old price. East Caradon, 4½ to 5; South Caradon, 50 to 60; West Seton, 6 to 8; West Tolgus, 42 to 44.

LEAD MINES partake of the general dullness, and as sales are pressed prices give way, and quotations offer no safe guide to actual value. Roman Gravels, 6 to 6½; there is no particular change here. The 95 south is opening out a fine strong lode, worth 3½ tons of lead ore per fathom. The sale of ore (180 tons) realised 804 10s.; blends (35 tons), 78 10s. Tankerville, 3½ to 4; Van, 15 to 16. East Van, 2½ to 2½; there are still spots of lead in this end west, but not enough to value. Derwent, 1½ to 1½; No. 1 stope in the back of the 93, west of Jeffrey's shaft, has improved in value from 18 cwt. to 1 ton 12 cwt. per fathom, and the 93, east of Westgarth's, coming to meet the above level, is also worth 1 ton 12 cwt. per fathom. There are five stopes in the 95, east of Jeffrey's, worth from 14 to 18 cwt. per fathom, and four stopes in the 93, west of Jeffrey's, are worth 6 cwt., one worth 1 ton, and two worth each 1½ ton per fathom. On the whole, the mine is reported as looking exceedingly well. At the general meeting last week it was stated that notwithstanding the fall in the price of this metal the company had sold in the year 1300, worth more lead than in the previous 12 months, and at the same time the reserves of ore laid open had doubled.

Pandora, 15s. to 20s.; in a week they expect to resume drawing orestuff from the 23, and in a week after to be again at work in the bottom of the mine. Everything is working well, and the machinery in an efficient state. South Darren, 2 to 2½; the 100 west from shaft is worth 14½ per fathom, and improving. The 100 east from winze, 40l. The 100 west from winze, 40l. The 90 end is being driven by the side of the lode. No. 1 stope in the 90, 40l. No. 2 stope, 25l. No. 3 stope, 40l. In the 80 level No. 1 stope, 20l. D'Eresby Mountain, 30 to 50; D'Eresby Consols, 8 to 9; Aberllyn, 10 to 11; Clementina, 1½ to 1½. Pateley Bridge, 3½ to 4; the company sold on the 18th instant 25 tons of pig-lead for 362 10s. Denbighshire Consolidated, 1½ to 2; the lode in the 60 yard level continues to look well. Gorsead and Merilyn, 3½ to 4; Great Holway, 4½ to 5; Pant-y-Mwyn, 3 to 4; Great Laxey, 15 to 16; Leadhills, 1½ to 2½; Rookhope, 10s. to 12s. 6d. West Chiverton, 1½ to 2½; Monydd Gorrdu, 2 to 3; there is a good improvement reported in the 24 end west. On the 19th 20 tons of lead ore were sold for 11 6s. per ton, and another 20 tons have been sampled for sale on the 29th. Caron, 2 to 2½; Grogwin, 2½ to 2½; Hartington Moor, 1½ to 2; Mawston, 60 to 65; Red Rock, 2 to 2½; Fronzoch, 2 to 2½; St. Harmon, 2½ to 3; South Cwmystwith, 2½ to 3; West Wye Valley, 2½ to 2½; Wye Valley, 2 to 2½; West Pateley, 1½ to 2.

FOREIGN MINES.—Cape Copper, 23 to 25; Colorado United, 1½ to 2½; Chontales, 10s. to 12s. 6d.; Don Pedro, 7s. 6d. to 10s.; Eberhardt and Aurora, 3½ to 4½; Exchequer, 4s. 6d.; Frontino and Bolivia, 2½ to 3. Javali, 7s. to 9s.; the directors report that 11,163 tons of ore, producing 9300l., were crushed during the first six months of 1878, against 8795 tons, producing 6402l., in the corresponding months of 1877, and that the average value realised from each ton was 16s. 8d., against 14s. 7d. They also state that in addition to the debenture interest a clear profit has been made of 1300l. in the six months. New Zealand Kapanza, 17s. 6d. to 20s.; Last Chance, 8 to 8½; New Quebrada, 1½ to 1½; Port Phillip, 10s. to 12s. 6d.; Richmond, 9s. to 10s.; St. John del Rey, 20s. to 250; Santa Barbara, 30s. to 35s.; Pitanqui, par to 4½ prem.; Blue Tent, 2½ to 3; Hultafall, 3 to 3½.

The Market for Mine Shares on the Stock Exchange is still very restricted, and the tendency of prices is rather downward than otherwise; indeed, the confidence of the public appears to be entirely shaken, and it is considered that nothing but a radical change in the system of seeking capital is likely to lead to a general revival. There are innumerable capitalists who would probably be willing to take their fair commercial risk in any legitimate undertaking, but their co-operation on these terms is not invited. According to the present system a company is formed and registered by the vendors or their friends to purchase a property, and a purchase price is fixed upon by these gentlemen which no man of business would dream of paying. The prospectus is issued, and if 10,000, in 17 shares be asked for the public probably do not subscribe 1000l., sometimes very much less. Finding that the capitalists do not consider the terms acceptable the promoters arrange among themselves to nominally take the whole amount refused by the public, and to call the market price 2½ (that

Notices to Correspondents.

* * Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt; it then forms an accumulating useful work of reference.

TIN-PLATES.—Would some reader kindly let me know the name of the works or company that manufacture a certain sort of tin-plate, known to the trade by the mark of "Craig"?—J. N. P.: Russell-square, Oct. 24.

TIN TRADE.—Would any reader be kind enough to give in the Notices to Correspondents a positive number of tons of tin produced by Cornwall and Devonshire in 1876 and 1877? The Mineral Statistics of Mr. Robert Hunt give, as returns obtained from the smelters, the round numbers of 8500 and 9500 tons; but it is very improbable that these numbers are equally exact as those of former years, which Mr. Hunt gives at p. 2 of each yearly volume. Perhaps they would also tell me by some few lines in what way the mines Wheal Eliza Consols and Wheal Francis have diminished their output, the former from 20, to 18½, the latter from 2½, to 5s, per share?—A.: The Hague, Oct. 21.

DYNAMITE.—Probably some of your readers can give us some information on the following subject:—We are offered some dynamite, containing 25 per cent. nitro glycerine, which is manufactured abroad. Has any English firm any patent rights whereby they could restrain us from importing this dynamite?—A. AND W.: Newcastle-on-Tyne, Oct. 22.

THE LAXEY WATER WHEEL is the largest but one in the world; it pumps over 200 gallons of water per minute; the circumference of the wheel is 217 ft. 6 in.; the diameter, 72 ft. 6 in.; the breadth, 6 ft.

WHAT IS ELVAN?—Would some correspondent kindly inform me, through the medium of the Journal, what is Elvan, what is its character as a rock, and how I may be able to know it? Is it a porphyry? I hardly think it can be what miners call a whin stone, but it may be what I have heard Cumberland miners describe as hazel stone. I have come across in a mine here a rock which the miner describes as trap, but which I believe is elvan. He does not know elvan (at least by that name), and I should be greatly obliged if some correspondent could assist me to know elvan.—SUBSCRIBER: Douglas, Isle of Man, Oct. 22.

Received.—J. H. (Bridgend): The letter has been forwarded as requested.—"T. W. B." (A. S.) (Tasmania)—E. J. J. (San Francisco)—"K. S. P." (New York)—"Shareholder" (Wheal Eliza)—"Constant Reader" (Greenock)—"S. S. (Phoenix Mine)"—Shareholder (Wheal Eliza)—"M. S.": It will be handed over whenever called for.—"Old Subscriber" (Manchester) should write to the directors, through the secretary—"B.": An article on the subject appears in this week's Journal—"Enquirer" (Dublin): We will endeavour to ascertain the particulars, for publication next week.

THE MINING JOURNAL.

Railway and Commercial Gazette.

LONDON, OCTOBER 26, 1878.

THE MINES REGULATION ACT, AND COLLIERY MANAGERS.

The prosecutions recently undertaken at the instance of the Government against the certificated managers of certain collieries where explosions, involving a very heavy loss of life, have taken place have turned out in every instance unsuccessful, so the results have led the miners and their leaders to the opinion that the Mines Regulation Act of 1872 is in every way inoperative so far as getting within its meshes the persons who are generally considered responsible for the safe and efficient working of mines, whilst it easily catches the smaller fry in the shape of the working pitman pure and simple. It is evidently this opinion which led Mr. CRAWFORD about a fortnight ago to issue a circular convening a special conference of the mining body throughout the kingdom, with a view, as he says, of "seeking from the Legislature some increased safety for working miners." There is evidently, too, some ground for the statement he makes that during the last 12 months some four or five explosions have taken place, involving a loss of no less than 660 lives, and for which "no one has been or can be held in the slightest degree responsible." The failure of the charge preferred against the underground manager of the Haydock Colliery, although, in all probability, inevitable in strict law, has been anything but assuring to the pit workers, showing, as they say it does, that responsibility cannot be brought home to a certificated manager of a colliery even where 190 persons were killed. From this it is argued that the law applicable to colliery managers has failed in showing that they are actually responsible for the proper ventilation of the mines in their charge, and this feeling cannot fail to be greatly intensified by the announced failure of the charges preferred against a well-known viewer—Mr. JAMES HENRY PRICE—late certificated manager of the Burley Mine of the Apedale Collieries, near Stoke-upon-Trent, where on March 27 last there was an explosion of fire-damp, causing the death of 23 persons. Proceedings were ordered to be taken against Mr. PRICE by the Home Secretary, and the charge was heard before Mr. SPOONER, county court judge, and Mr. EVANS, Government Inspector of Mines for Derbyshire, at Stoke-upon-Trent on Saturday last. The Treasury was represented by Mr. BOOTH, and the defendant had the services of Mr. UNDERHILL, barrister, so that the hearing was expected to be an interesting one, and it was thought the evidence would have been found sufficient to substantiate the charge, which was laid under the 32nd section of the Mines Regulation Act of 1872. That section enacts that if any manager holding a certificate is by reason of "incompetency or gross negligence" unfit to discharge his duties, or has been convicted of an offence against this Act, the Secretary of State may, if he think fit, cause enquiry to be made into the conduct of such manager." By subsection 6 of the clause it is also provided that the Court shall have power to "cancel or suspend the certificate of the manager" if they find he is by reason of incapacity or gross negligence unfit to discharge his duty. The charges against Mr. PRICE were that he had not provided sufficient ventilation in the pit so as to make the working of it safe, that he permitted the return air used for the ventilation of the mine to pass over a dumb-drift and over the ventilating furnace, so that by the return air being impregnated with gas there was always the danger of an explosion; and that he caused a thirling or passage to be cut into the furnace-dip, by which the course of the air to the furnace was much shortened, &c., so that by so acting he had caused the loss of 23 lives. The issues to be tried were, consequently, simple to all appearance, and that such was the opinion of the legal advisers of the Treasury we may feel certain, for it is not assuming too much to say that those who drew up the clauses of the Act of Parliament, or had a hand in so doing, should be able to interpret them in their true legal sense and meaning, or at least what the Legislature intended them to be. But the most important clauses seem capable of being construed by magistrates very differently to what they are by the Home Secretary and the solicitors to the Treasury. Hence it is that the few cases which have been tried under the 32nd clause have all broken down. There is, therefore, some ground for the complaints made by those acting on behalf of the miners that where an explosion has taken place, owing to the ventilation being insufficient to neutralise and render harmless the gases, no conviction has followed where charges have been preferred at the instance of the Government, and that further legislation is necessary.

We do not say that any of the persons who were charged with an offence or offences under the Mines Act were morally or legally guilty, but we do not think they should have been called upon to answer any complaint under any section unless there was the strongest probability of a conviction being obtained. In the case of Mr. PRICE, the Government Inspector of the district, Mr. WYNNE, in giving evidence, said he believed the gas in the return air as it passed over the furnace at the bottom of the dip came into the flames and ignited, and that the danger was increased by a thirling or passage cut into the furnace dip the day before the explosion, which added to the danger of an explosion by shortening the course of the return air and diminishing the chance of its mixing with the gas so as to render the compound harmless. He also stated that he believed the proprietors had done their utmost to secure adequate and proper ventilation. But from the statement of Mr. WYNNE just given the mine appears to have been a dangerous one, for all colliery managers know that in a mine where gas is given off scarcely anything is more calculated to lead to an explosion than to allow the returns to pass directly over a furnace, by which ignition is rendered very easy, and so invites what should be avoided. No doubt the proprietors and managers did all they could to prevent

an accident, but they must have known that danger was always to be apprehended owing to the mode of ventilation. This was fully borne out, not only by the result, but from a statement of Mr. WYNNE himself, who said he should have compelled the manager to put a stop to the furnace had he not been aware that a fan was in course of preparation and about to be erected. Here we have another illustration of the dangers attending delay. Still, with the knowledge of the Government Inspector, as stated above, although so much was to be feared from the furnace that it was only to be tolerated for a short time, the men were allowed to go to work as usual, and the gas allowed to go close to the fire. But we are decidedly of opinion that with the admitted danger it would have been only a matter of duty to have discontinued working until the fan was put down. Had this been done there would have been no explosion, and the lives of many men would have been spared. It may be said that it is very well to be wise after the occurrence, but then in a mine men should on no account be exposed to a known danger, which may at any moment render them lifeless. But it is too frequently the case that immunity from accidents when surrounded by dangerous elements leads to carelessness or even recklessness, until at last the spark is lighted, sending scores to an untimely death, but which might have been averted by prudence and known precautionary measures. In the accident at Apedale it is evident that the ventilation was deficient, and that the first general rule had not been carried out, for it provides that an adequate amount of ventilation shall be constantly produced in every mine to dilute and render noxious gases harmless, so that the various places shall be in a fit state for working and passing in; but instead of this rule being complied with the air and the gas together formed an explosive compound, and actually passed over the flames of the furnace, and as a matter of course led to an explosion. But no person is to blame, for the Judge and the Assessor said that there was not a tittle of evidence to show that the explosion had been caused by either the gross negligence or incompetency of Mr. PRICE, so that the charge was dismissed, and the costs of the defendant given against the Treasury. This will prove a strong argument on the part of Mr. CRAWFORD and the Manchester Miners Conference that will be taken full advantage of, and it will also commend itself to those members of the House of Commons who have taken an interest in mining questions. The giving of costs against the Treasury must be anything but pleasing to Mr. Cross, when taken in connection with the loss of the suit promoted by himself, and it is, therefore, not unlikely that he will be more willing than he would otherwise have been in making some material alteration in or addition to the Mines Bill of 1872. For ourselves, we have long been of opinion that legislation in connection with coal mining has gone far enough, but seeing that all charges brought against persons for being in some way the primary or secondary causes of explosions in mines where the loss of life has been of an appalling character have failed, and that no one, according to the magisterial decisions, can be held responsible for them, even when the result of defective ventilation, some alteration would appear to be called for, seeing that the workmen have taken the matter up so warmly. It is, therefore, not unlikely that next session will see the Home Secretary taking some action with regard to the subject on the application of the working miners, the arguments in whose behalf, owing to the miscarriage of the several cases ordered to be prosecuted by the Home Secretary, will be more powerful than ever they have been before.

ENGLISH COAL AND IRON IN FRANCE AND BELGIUM.

It is somewhat singular to find just now that the French colliery owners are trying all they can to prevent any increase in the importation of English coal, whilst our ironmasters are endeavouring to obtain from the Belgian Government a remission of the import duty on British pig. For some time past an able correspondent of the Journal has advocated the sending of coal from some of our ports direct to Paris, and has pointed out how easily that could be effected by improving the navigation of the Seine, and making it navigable from the sea to Paris. That this would be of the greatest advantage to the inhabitants of the gayest capital in Europe admits of no question, for it would not only give them coal at a much lower price than it has yet been, but it would also give them many other products at a corresponding low rate. This has been so apparent that the French Minister of Public Works a short time since announced his intention to improve the navigation of the Seine for increasing the depth to a minimum of 10 ft. 8 in., and making the currents there even. Were this effected English vessels of fair tonnage would be able to go up to Paris and discharge their cargoes there, and as it is admitted that coal can be carried at a much lower rate by water than by railway we should be in a position to undersell, or at least successfully compete with, both French and Belgian colliery owners. With such a prospect staring them in the face the French mine proprietors have become somewhat alarmed, and several of them have pointed out to the Minister how advantageous it would be to have a deep canal from the northern coal fields and those on the Belgian frontier to a point near Paris. France, it may be said, has a coal field 1000 square miles in extent, with an average thickness of 60 ft., yet it only yields about the same quantity as Yorkshire, thus showing that there is a great lack of enterprise, and that coal mining is anything but a popular pursuit in France. For years past from 5,000,000 to 6,000,000 tons of coal have had to be imported to meet the requirements of consumers, and only last year we sent to the various French ports 2,982,372 tons, so that there is not the slightest ground for the policy now being brought to bear on the Minister of Public Works to prevent him from improving the Seine in the interest of English and other colliery owners, as well as other maritime countries that export goods to France. A special committee has been appointed by M. DE FREYCINET to consider the claims urged on behalf of the French mining interest, but the members are also to consider how far the deepening of the Seine would affect the trade in consequence of English competition, and to study the necessity and cost of the proposed canal, so as to maintain the supremacy of French coal in the Parisian market. The question is really one of cheap or dear coal; but, as we have before stated, France finds no difficulty in selling all she produces, so that she has nothing to fear from English competition. The inland markets in particular are at the command of the French colliery owners, and English coal would compete more with the Belgian and German than with that of any part of France, and there is certainly no reason why the inhabitants of Paris should be taxed in the vain endeavour to establish a monopoly in favour of home production. French iron and steel has also to compete with that of other countries, so that for their production fuel at a moderate price is an essential. At present the make of pig in France is about 1,500,000 tons a year, and of wrought-iron 800,000 metric tons, and of steel barely 300,000 tons, so that there is a large consumption of coal in connection with those industries. On the other hand, the English coal imported would be principally for household and gas-making purposes, and for these is superior to either the local, Belgian, or German coals. It is, therefore, to be hoped that facilities will be afforded for the English coal reaching Paris direct by water, as it would be for the benefit of consumers and shippers alike.

It has often been remarked that whilst foreign goods are admitted free of duty into England, the same privileges are not granted to us by many of those countries. We are in this position with respect to Belgium, from which 50,000 tons per annum of the special products of that country's mills and forges are imported free of duty. These goods compete with our own, and, owing to low wages and the long hours worked, the makers of them are able to undersell us in our own markets. This is by no means pleasant, but we accept it as an accomplished fact, and think no more about it. But in the present state of the iron trade we look for a little reciprocity, by which neither the revenue of a foreign state nor the ironmasters in it, would in any way be injured. Now, we know that Belgium cannot produce pig-iron by any means as cheap as England, whether everything is more favourable for the making of it, so that to the former we export a considerable quantity every year. But when it reaches that country there is an import duty charged of 2½d. per cwt. As this has been a serious drawback to

the trade, the board of management of the British Iron Trade Association have petitioned the Belgian Ministers of Finance to remit the duty now levied on British pig, and this they do on several grounds that we believe will meet with favourable consideration, as they deserve to do. It is stated that the duty is not really protective to Belgian pig-iron makers, because they cannot produce pig under as favourable conditions as England and Luxembourg, whilst no substantial advantage is given to the revenue of Belgium, for, although apparently considerable in amount, it is reduced by the drawbacks allowed, and what is left must be almost wholly absorbed in the cost of collection. That not only are the English producers and Belgian consumers of pig alike anxious for the abolition of this duty, but the most important maritime association throughout the kingdom of Belgium as well, and especially that of Antwerp. Another important argument in favour of the abolition of the duty is that it would be certain to develop a larger trade between Belgium and England, and by enabling Belgian iron-founders, forge-masters, and engineers to purchase their crude iron more advantageously, it would enable them to distribute their products over a wider area, and would, moreover, benefit Belgium by affording employment to a large number of hands in the Belgian mills and forges occupied in converting the crude iron into manufactured products. There are also some other grounds adduced in favour of a remission of the duty, which, will, no doubt, meet with that consideration from the Belgian Government that their importance entitles them to, and it is to be hoped in the interest of both countries, that the prayer of the petition of our ironmasters will be acceded to.

PARIS UNIVERSAL EXHIBITION, 1878.

The first proof (to be revised from the General Official List of Awards of the International Jury) of the List of Awards made to British Exhibitors has just been issued by order of H.R.H. the Prince of Wales, as President of the Royal Commission for Great Britain and Ireland, and British exhibitors may fairly be congratulated upon the number of honours they have secured for this country. It is explained that at a meeting of the Superior Commission and of the Jury of Presidents held on July 27, and presided over by M. Teisserenc de Bort, it was determined to double the number of gold medals, and to increase in a less proportion the other medals and awards, one of the reasons being the unexpected number of exhibitors, stated as amounting in round numbers to 53,000. The amended list provided for 130 grand prizes, 2470 gold medals, 6400 silver medals, 10,000 bronze medals, and 10,000 honourable mentions—20,500 in all. The present number of recompenses is in excess of this figure, there being 2510 gold medals, 266 rappels of gold medals, and 363 diplomas equivalent to gold medals, making a total of 3139 for gold medals alone, but duplicate medals, &c., have to be deducted.

Of the nine groups into which the exhibits of the various nations were distributed, the fifth—Mining Industries—and the sixth—Machinery—are those in which the readers of the *Mining Journal* are chiefly interested, and, turning to the lists of awards in these groups, it will be found that in class 43—mining and metallurgy—the Grand Prix has been awarded to Sir John Brown and Co., of the Atlas Steel and Iron Works, Sheffield, for armour-plates; to Cammell and Co., of the Cyclops Works, Sheffield, for armour-plates; to Johnson, Matthey, and Co., of Hatton Garden, London, for platinum; and to Sir Joseph Whitworth and Co., of Manchester, for fluid-pressure steel; whilst Gold Medals have been awarded to Messrs. Baldwin, of the Wilden Works, Stourbridge, for sheet-iron and tin-plates; to Brown, Bayley, and Dixon, of Sheffield, for steel rails and tyres; to the Broughton Copper Company, of Manchester, for copper; to Bury and Co., of Sheffield (rappel), for steel and tools; to Elkington and Co., of Birmingham, for electro-plate; to Earl Granville and the Sheltion Iron Company, of Stoke-upon-Trent, for Staffordshire iron; to the Hadfield Steel Foundry Company, of Attercliffe, Sheffield, for cast-steel; to Harrison, Ainslie, and Co., of Ulverston, for charcoal pig-iron; to W. Jessop and Sons, of Sheffield, for cast-steel; to the Lindore-Siemens Company, Westminster, for steel; to the Leeds Forge Company, for Yo k-hire plates; to the Lillieshall and Snelbush Company, for Staffordshire iron; to the Plumbago Crucible Company, Battersea, for crucibles; to G. H. Ramsay, of Newcastle-on-Tyne, for coke, coal, and fire-clay; to Seebom and Diebstahl, of Sheffield, for steel; to George J. Snellus (collaborateur), of Workington; to Thomas Turton and Sons, of Sheffield (rappel), for steel and tools; to the West Cumberland Iron and Steel Company, of Workington, for steel-plates; and to the Wigan Coal and Iron Company, Lancashire, for coal.

In the other class—Class 50—to which reference may be made, and which embraces apparatus and processes of the art of mining and metallurgy, not one Grand Prix was awarded, and only one gold medal—that to the late Mr. T. Whitwell for his hot-blast-stoves. Silver medals were awarded to the Diamond Rock Boring Company, of Westminster, for a rock-drill; to Hathorn and Co., of Charing Cross, for a rock-drill—no doubt Elliott's new Eclipse drill, recently referred to in the *Mining Journal*; and to Tange Brothers, of Birmingham, for pumps. Bronze medals were awarded to Le Gros, Mayne, Leaver, and Co., for rock-drill; to J. Cliff and Sons, of Doulton and Co., and to the Plumbago Crucible Company for crucibles; to Robey and Co., of Lincoln, for mining engine; to the Savile Street Foundry Company, of Sheffield, for ventilators; and to Mather and Platt, of Manchester, for stone-breakers. Honourable mention was awarded to R. Broadbent and Son and H. R. Marsden for stone-breakers; to Le Grand and Sutcliffe and to Simon, Barre, and Co. for rock-drills; to Brunton and Co. for safety-fuses; and to J. Cooke and Co. for safety-lamp. First on the list of Silver Medalists in Class 66 stands the Abernethy Ironworks and Collieries Company, of New Bridge-street, London, for a display of bricks, which were certainly very attractive. In this class Messrs. Collinson and Lock, of Fleet-street, received a gold medal for their fine Old English house in the Avenue of Nations; Hobbs, Hart, and Co., of Cheapside, were awarded the same for their earthenware pipes. In Class 54—machines and apparatus in general—Messrs. Galloway and Sons, of Manchester, have been awarded a Grand Prix, but it has not yet been decided what for, and gold medals were awarded to Messrs. Clayton and Shuttleworth, of Lincoln, reason of award not stated, and in Class 51 a similar honour for thrashing machines; to Hathorn, Davis, and Davey, of the San Foundry, Leeds, for hydraulic apparatus; to Robey and Co., of Lincoln, for steam-engines; to Tange Brothers, of Birmingham, for steam-engines. In Class 53—Machine Tools—J. Hall, of Chancery-lane, was awarded a silver medal for a boring-machine; and in Class 53 Johnson, Matthey, and Co. were awarded a Grand Prix for refining machinery.

The irregularity of the awards at all exhibitions has almost invariably been a matter of complaint, and, without any desire to find fault with the exertions of the jurors, the lists cannot be looked at without leading to the conclusion that in different classes widely different views have existed, and consequently many curious awards made. It can scarcely be doubted that had the exhibits in Class 50 been recompensed by the jurors of Class 43 the exhibitors would have been much better rewarded, unless, indeed, the different awards are open to explanation. Few men are likely to be better able to judge of the value of a crucible than John Arthur Phillips, who was, perhaps, the most prominent member of the jury of Class 50, and the jurors of this class saw nothing in crucibles worth more than a bronze medal, which honour was awarded, amongst others, to the Plumbago Crucible Company, of Battersea. Now, assuming this to be a sound award, how comes it that the same exhibitors and presumably for the same article, receive a gold medal from the jurors of Class 43. Again, Appleby Brothers get a bronze medal for their lift in Class 50, and a silver (rappel) in Class 54; also H. R. Marsden, who merely gets honourable mention in Class 50, is awarded a gold medal in Class 66. These differences, if they be such, might be referred to almost indefinitely, but these instances will suffice, and although they are a great measure due to the absurdity of admitting the same exhibits in two or more classes, so that some exhibitors take the chance of getting a higher honour where the jurors are less intimately acquainted with the precise merit of the exhibit, they may be

cepted by the less fortunate as a consolation from the conclusive evidence afforded that in such awards no fixed standard has been chosen, and that the obtaining of high honours depends as much upon good fortune as absolute merit.

COAL MINING AT THE ANTIPODES.

While ever so many coal mining companies projected during the last few years in Wales and other parts of Great Britain have resulted in dismal failure, the Scottish Australian Mining Company (Limited) is enabled to declare a dividend for the half-year ending June 30, 1878, at the excellent rate of 15 per cent. per annum. The company's mainstay is the Lambton Colliery in New South Wales, and the net profit realised from this colliery during the period in question was 18,081*l.*, the necessary disbursements for maintenance and renewal having, of course, been provided for. The general coal trade of New South Wales has continued to show a steady progress this year, and the Scottish Australian Mining Company (Limited) has fully participated in the increased amount of business which has been done. The company's colliery viewer, Mr. CROUDACE, has, after a service of 17 years, recently paid a short visit to this country, and has thus afforded the directors an opportunity of conferring with him upon many matters. Mr. CROUDACE leaves London shortly on his return to New South Wales, and he takes out with him much valuable information acquired during his stay in Europe, which will probably be of use to him in the future prosecution of his duties at the colliery.

Including a balance of 2254*l.* brought forward by the Scottish Australian Mining Company (Limited) from the previous account, the balance available for dividend is 18,468*l.* The proposed dividend at the rate of 15 per cent. per annum will absorb 12,000*l.* of this sum; and it is proposed to add 3500*l.* to the reserve fund, thereby increasing it to 21,000*l.* After all this is done, the company will be enabled to carry 2968*l.* to the credit of the next account. The company's colliery appears to be managed with economy and prudence. Thus while 99,463 tons of coal sold for 56,789*l.*, and 44*l.* was derived from rents of cottages and miscellaneous sources, the working expenses incurred to secure these results were confined to the following items:—Colliery general charges, carriage and cranes of coal, and shipping charges, 34,851*l.*; maintenance, renewal, &c., of railway rolling stock, plant, &c., 3521*l.*; and proportion of Sydney general management expenses, 400*l.* The balance of 18,081*l.* is the amount previously indicated as profit of the half-year. The charges in London are also distinguished by the same economy being limited for the six months ending June 30, 1878, to 1159*l.*, this sum including 500*l.* forming the half-yearly remuneration of the directors.

It will excite some surprise when we state that although the company's Lambton Colliery is yielding a profit of something over 33,000*l.* per annum, it only involved a cost to the company of 81,874*l.*, this sum including a railway, rolling stock, buildings, horse stock, pits, mining plant, stores, implements, land, &c. Had the Scottish Australian Mining Company (Limited) confined its operations to the Lambton Colliery it would have been a still more lucrative concern than it now is, as a capital of 100,000*l.* would have been sufficient for its business, and a dividend at the rate of 30 per cent. could have been paid upon that amount. The capital actually raised by the company is, however, 160,000*l.*, and although the Lambton Colliery is a source of great wealth and profit there are other departments of the undertaking which have been attended with less favourable results. Thus the company was not content to confine itself to the extraction of coal, but it has also embarked in copper mining. The amount of capital which has been sunk in two copper properties would appear to have been 47,440*l.*, and at present the dividend results obtained have been just about nil.

THE IRON AND STEEL WORKS OF AMERICA.

The numerous contributions to the statistical literature of the Iron and Steel Trades of the United States by the energetic secretary of the American Iron and Steel Association—Mr. JAMES M. SWANK—have been from time to time referred to, and he has now made a valuable addition by the issue of the revised Trade Directory, which has been carefully corrected to Sept. 1 of the present year. The Directory now published contains many features which are entirely new, although its leading features do not vary from those of its predecessors. A better classification of the steel-works of the country and of the works that manipulate steel has been adopted; and in the description of furnaces there has been incorporated, as far as practicable, the quality and brands of iron made by each furnace, and the kind of ore used. In the description of rolling-mills an effort has been made to obtain information concerning the specialties of each mill and the brands used; and in the description of steel-works a fairly successful effort has been made to ascertain the number of pots in each establishment.

The results of the enquiries have been very ably summarised, and it appears that on the date mentioned—Sept. 1, 1878—there were 608 completed blast-furnaces, of the annual capacity of about 5,228,000 English imperial or metric tons. Of this quantity the luminous furnaces represent 2,302,430 tons, the anthracite furnaces 2,031,000 tons, and the charcoal furnaces 890,000 tons. There were 310 rolling mills, with 4493 single puddling-furnaces. In steel-works and bloomeries there were also 51 single puddling-furnaces. There were 1347 trains of rolls, of which 1252 were in rolling-mills, and 95 in steel-works of all kinds. The annual capacity of all rolling-mills in finished iron was 3,970,000 metric tons, out of which the rail-mills in heavy rails represented about 1,755,000 tons. There were 11 Bessemer steel-works, having between them 22 converters, their capacity for ingots being about 667,500 tons. There were 14 open hearth steel-works, with 22 furnaces, the aggregate capacity of which was about 89,000 tons. There were 33 crucible cast-steel works, with about 3400 melting-pots, the productive capacity of which was about 80,000 tons. There were 8 miscellaneous steel-works, of the estimated capacity of 19,600 tons of merchantable steel. The 64 Catalan forges producing blooms from ore were of the annual capacity of 57,850 tons, and the 58 bloomeries producing blooms from pig-iron were also of the capacity of about 57,850 tons.

It must be understood that the producing capacity of the iron and steel works here given are the aggregates of individual returns of individual establishments; but some of them can never be realised in practice. Blast-furnaces and rolling-mills cannot be uniformly operated to their full capacity, nor can all of them be in operation at the same time; but the working capacity for the steel-works, forges, and bloomeries is probably not overstated. The volume affords an enormous quantity of information, and is well worthy of attentive study.

COPPER.—The following figures will be interesting in respect to the exports of unwrought copper:—

Exported during Sept.,	1876	Tons.	Value.	Average per ton.
"	1877	903	£71,079	78 14 0
"	1878	862	63,550	73 14 0
"	1878	1025	69,585	67 17 0

PLACERVILLE GOLD QUARTZ COMPANY.—When this company was last noticed operations had been just commenced, and the old workings unwatered. The latest advices are to the effect that the sinking of the shaft had been resumed, while the levels were being extended and rich ore laid open. The fact that a substantial test of the quartz has been made by crushing 130 tons raised from the deepest part of the mine without any selection whatever, and that the yield of the same averaged 13 per cent of 2000 lbs., is sufficient to show what results may be expected when the mine is laid open to extensive work. It is expected that the sump winze and shaft will be down to the 400 ft. level in about three months, while by the time the 500 ft. level will be reached, when the shaft can be rapidly laid open for stopping, and a new mill capable of treating with 40 tons per day erected. The total cost of mining will not exceed \$5 per ton, so that a large profit can at once be realised. One of the directors has just returned from the property, and having previously had considerable

experience in gold quartz mining, he is of opinion that the test made, as mentioned above, has given the mine a fair and complete trial, and has in all respects thoroughly satisfied him that the mine is valuable, and the future prospects of the company all that can be desired. This company is being watched with much interest. The resuscitation of the mine has already given an impetus to the quartz mining in the immediate neighbourhood, and bids fair to be of lasting value to the district.

REPORT FROM CORNWALL.

Oct. 25.—Further evidence, if any had been needed, of the truth of our remarks respecting the uncertainty of the condition of mining affairs just now was again supplied last week. On the previous Friday the tin standards had been dropped just when it was hoped and believed that the danger of a fall was over. Last Friday, when very few, if any, could have expected a rise, up the standards went again. What may have led the smelters to act in this uncertain way must be best known to themselves. It certainly is not very apparent outside the charmed circle. Granted that trade was dead, and that an already dull business had been made much duller by the failure of the Glasgow Bank. This last at least was a temporary cause merely, and certainly not sufficient in itself to justify such a very serious step in the reduction of the standards to a point lower than any to which in living memory they have ever fallen. But if the stoppage of the bank, either alone, or in conjunction with any other causes, was held to authorise the laying on of the "last straw" in this sudden fashion, what reason can be assigned for putting the standards up again? We are certainly not at all inclined to quarrel with this step on the part of the smelters. They would have to put the standards up a good many pounds before we should be disposed to ask them to hold their hands; but for all that, we would like to know what are the motives which actuate these proceedings. If they were right in dropping the standards, there was very little reason why they should put them up again while the general condition remained almost unaltered. If they were right in the rise, then they seem to us to have blundered sadly in the fall.

Dr. Foster has made a raid upon the clay merchants of the Newton Abbot district. In the clayworks of the parish of Kingsteignton in that neighbourhood the clay is raised by shaft mining, and Dr. Foster not only found that sundry of these pits were improperly fenced, but that they were very badly ventilated. The ventilation was not worthy of the name, although there was certainly an appearance of ventilating provision, and an attempt was made to throw the blame upon the workmen, while one of the advocates for the defence hit upon the ingenious theory that "looking at a candle" made it go out. Dr. Foster said that in one of the levels of a pit belonging to Messrs. Whiteway and Mortimer this air was so foul that his candle went out three times whilst in an upright position. The candles which the men were using underground were placed halfway between the top and bottom of the level in a horizontal position. He made experiments with a candle in different parts of the level with the same result. There was a ventilating pipe running down the shaft, but it extended only to within about 10 ft. of the bottom of the shaft, and was above the level. The only arrangement for forcing air into the shaft at that time was a windmill. The ventilating pipe was 6 in. square. There was a fan-wheel on the ground at the top of the shaft, but it was not in use. Fountain's pit, belonging to Messrs. Watts, Bearne, Blake, and Co., was visited by Dr. Foster just as the men were leaving work, upon which the men on the surface began blowing with the fan-wheel at the top. The ventilating pipe went only into the shaft not into the levels. In one of the levels, about 9 yards in from the shaft, a lighted candle held perpendicularly about 4 ft. from the bottom of the level went out in about four minutes. In this case the ventilating pipe was only a small gas-pipe and notice had been given to have the ventilation attended to. The Bench inflicted a penalty of 1*l.* and costs in each case. This shows the need of these smaller works being well looked after.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Oct. 24.—Among the useful public works in progress at the present time in North Wales may be mentioned the bridge over the River Mawddach, at Penmaenpool. This bridge will give easy access to the large population north of the river, including those connected with the gold mines, to the Cambrian Railway. Heretofore the access could only be had by going either to Barmouth on the west, or Dolgelly on the east. The works on the Bala and Festiniog Railway have actually been commenced, and a bridge over the River Dee, near Bala, is in the course of construction. The heading of the tunnel near to Festiniog, on the Bettws y-Coed and Festiniog line, is through, and the line approaching completion. The tunnel passes through the slate rocks, but some of the series are found to be absent.

The little creek and port of Pensarn on the Cambrian coast line, between Barmouth and Portmadoc, is attracting attention. It is well adapted for a good shipping trade, and a siding runs down to the quay. Some of the paving set quarry companies near Portmadoc are contemplating shipping their stone from this port, the difficulty and expense of reaching the quay at Portmadoc being so great, involving, as it does, transhipment to a narrow gauge line, and the payment of freight to two or three railway companies. I would suggest to the Cambrian Railway Company, and to the authorities of Portmadoc, the extreme desirability of the construction of an ordinary gauge siding down to the port. The network of narrow gauge lines may be avoided if the line is taken down the north side of the river to the deep water above the bridge near the station of the Festiniog line. This bridge should be altered into a movable one, so that ships could pass to the upper or eastern side of it.

I am informed that the surveys of a narrow gauge railway from Oswestry to the mineral region of Llangynog are approaching completion. The line will turn from the Cambrian Railway a little below the town of Oswestry, pass up the Morda valley to the Lwnt, where there are limestone quarries, then down another valley to Llanilin, from thence by Penybont, Llangedwin, and Llanrhadr to Llangynog. This is the natural route. The line will open out a rich district, and if it is economically made will prove a commercial success. The engineers are local men, Mr. W. H. Spaul, of Oswestry, and Mr. George Owen, engineer of the Cambrian lines, of the same town. The leading landowners are, as they ought to be, favourable to the scheme, and everyone interested in the district should desire its successful completion.

Among the districts where similar cheap railway communication is much needed I would mention the Rheidol and Ystwith valley from Aberystwith up to the lead mining region of Goginan. A good deal of money is derived from this district yearly, and a good deal is lost for want of better means of communication. Is there no one public spirited enough to inaugurate a movement towards supplying the want?

The railway from Bangor to Bethesda is not to be made after all. The negotiations with the London and North-Western Railway Company have been broken off. Nantlle, Bettws Garmon, Festiniog, and Corris can have their lines, but Bethesda cannot have its line. Why? Well, the only answer I am at liberty to give is—"Twenty thousand quarrymen should ask the reason why?"

A new industry is springing up in the quiet out-of-the-way town of Cardigan. Messrs. Woodward and Co. are producing artistic pottery, samples of which have received very high praise. We are told that their productions "are not to be surpassed by anything outside Greek collections." The clay used in this district must be a surface clay, and it is not often that the recent clays are found pure enough for such purposes. With works of art rivaling ancient Greece, and the approaching railway, Cardigan is waking out of its long sleep.

An uncertain mine is often as good as a large landed estate to its owner. The Great West Van, which is, indeed, a great way west of the Van—some six or seven miles—was sold last week to the original vendor for 2050*l.* Only a few years since the vendor sold it to the late company for 26,000*l.*, and he now gets the property back with shafts sunk, levels driven, and machinery added for one-twelfth

of the sum. The case illustrates a segment of the usual cycle run by many mining enterprises. Soon a new and valuable discovery will probably be made, the property will receive a new name, its riches will be vividly described, and when times brighten it will again be sold for 20,000*l.* or 25,000*l.*, and so will be added another segment to the cycle.

Messrs. Sparrow and Son, of the Ffrwd Ironworks, have intimated that if the workmen will not submit to a 5 per cent. reduction the works must be closed. Nearly all the small collieries of South Shropshire are closed, or used only for the mining of ironstone.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Oct. 24.—Depression has still to be reported as the feature of trade in South Staffordshire. Upon hardly any hand is business improving; on the contrary, matters in the pig-iron market appear to be getting worse. The approach of winter finds us with only just enough work to do to keep afloat, and much of this is resulting in absolute loss. Competition is severe in the iron and in the coal trades, for the limited number of orders on the market is the subject of much underselling by traders in the district and by firms from a distance. That trade will revive in the spring all earnestly hope, and not a few expect, but even the most hopeful have little or no ground upon which to base their expectations. The only new characteristic this week is that the ironworkers commenced on Monday to work at the drop of 5 per cent. in their wages awarded by Mr. Joseph Chamberlain, M.P.

The proposed alteration of the length of the working day at the pits continues to be the subject of much public discussion amongst the men, and in every instance the meetings, whether mass or delegate, have resolved to reject any plan by which the hours of labour are sought to be increased. At a conference at Dudley on Tuesday of masters and men it was resolved that if the colliers would consent to work another hour per day the wages of the thick coal men should be increased 6*d.* per day and those of the thin coal men 3*d.* per day. Meetings of the men that have been held to consider this proposal have resulted in similar resolutions to those just indicated. The injurious eight-hours system will, it is evident, be clung to with very great tenacity.

The report of the Aldridge Colliery Company (Limited), which has just been issued, states that the progress of the undertaking has been seriously hindered, and a loss incurred of 1266*l.* by the accident to the machinery in July last year. The length of gate road that has been driven during the year is 1600 yards. The coal has been proved up to the boundary of the estate, and "both in quantity and quality the result is very satisfactory." The company's income has been 1408*l.* Placing against this amount the management expenses, interest on borrowed money, and loss on brickyard trading, the year's operations shows a deficiency of 79*l.* 12*s.* This reduces the balance carried forward to 768*l.*

The Spon Lane Colliery Company, West Bromwich, must be highly gratified at the award of the umpire (Mr. William Bryham, Rosebridge Colliery, Wigan), just to hand, in the matter of their dispute with the Home Office. Originally Mr. J. P. Baker, the Government Inspector of Mines for the district, reported a rapid and dangerous increase in the column of water standing against the company's colliery, but on legal proceedings being taken he was unsuccessful in establishing his case. After the lapse of a year he again gave the company notice of a dangerous rise in the water, and arbitration was resorted to. The umpire's award is now entirely in the company's favour, and the costs will fall upon the Treasury. Mr. Walker, Wolverhampton, was the solicitor representing Mr. Baker, and Mr. Jackson, West Bromwich, attended on behalf of the company.

As to the North Staffordshire trade, I have this week only to report that notices have been posted at all the ironworks for a similar drop in wages to that which has occurred in the southern part of the county.

The Home Office have been unsuccessful in their prosecution of Mr. J. H. Price, certified manager, for incompetency and mismanagement, resulting, the prosecution contended, in the late disastrous explosion at the Barley Pit, Apedale. Mr. W. Spooner, county court judge, held the Court, and before the case for the prosecution was concluded the judge announced that he and the assessor were agreed that there was no criminating evidence, and dismissed the complaint, with costs against the Government.

This (Thursday) afternoon the Cannock Chase coalmasters held a meeting in Birmingham, and resolved to give their colliers notice of a drop in wages of 6*d.* per day. If their men should decline to accept the drop it will be enforced. The Cannock Chase and the Dudley coalmasters act independently in wages matters.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Oct. 24.—The week has been a most uneventful one so far as it relates to trade of every description, for there has been no change worth reporting. Lead mining has been fairly prosecuted, but the returns are below what they were some few years since, and the present time, with lead at the price it is, cannot be considered at all favourable for speculating in mining operations. However, there are a few concerns which are doing very well, but many are doing just the reverse. The collieries in most parts of Derbyshire are now working better than they have done during the previous part of the year, and prices are rather higher. To London the trade is tolerably brisk, and a heavy tonnage is being sent over the Midland Railway to the depôts, whilst a good deal is being put on to other lines. Clay Cross is sending fully 5000 tons a week to the Metropolis, and several others are sending 2500 tons a week. Merchants in London have been able to keep up prices to a point higher than during any previous part of the year, but this has not been shared in by the colliery owners. Steam coal is not so much enquired for, and only a moderate business is being done in steam qualities as well as in slack and smudge. The produce of the furnaces has been as usual, but the sales are not equal to it, whilst prices have in no way improved, and are far from being remunerative. More markets, however, have been found for it than formerly, but the competition with the makers of other districts does not tend to advance prices. The foundries are by no means busy, although several of them are able to keep their hands fully going. Bessemer rails are fully as busy as they have been, the output at Driffield being heavy, and there is every appearance that this state of things will continue, for steel rails are increasing in request *vice* iron rails, which are fast dying out.

In Sheffield business has in no way improved, and the last quarter of the year promises to be more than usually dull. For some time past puddlers have been anything but well employed, and having been asked to submit to a reduction of wages, consequent on what has taken place in South Staffordshire, they have submitted to it after meeting together. Armour-plates have not improved, and a moderate production of ship and boiler plates only has to be noted. Sheffield plates are extensively used on the Clyde, and it is not unlikely that the recent failure of the bank may affect some of our makers, but as yet this has not been experienced at least to an appreciable extent. Makers of Bessemer continue busy, not only for rails, but for other purposes as well, for special qualities are now being made for cultry of a certain class. Two or three houses engaged in making table and pocket knives are doing tolerably well, but this important branch taken altogether is very quiet. The home demand has been quiet, but Australia, India, and British North America have been taking considerable quantities from us, as well as tools and implements. In malleable iron business has been well maintained, and this important department, which has frequently been extended, has undergone less fluctuations than almost any other. In the Rotherham district the ironworks have been doing tolerably well, and the foundries in particular have been fairly well off in ordinary castings, whilst wagon builders have also been doing tolerably well.

Throughout South Yorkshire the collieries are much busier than they have been, and the London trade has improved. But as the coalowners have to depend very much on the Great Northern, the rate charged by that company is against any marked extension of business in that direction. The proposal of Mr. Thompson to take the coal by water to Boston, and thence after being screened per into

sacks, and forwarded by water to the Thames direct, now that it is understood appears to be more feasible than it did. If one of our colliery owners could be induced to make the experiment no doubt he would be followed by others, even if the first was but slightly successful. But the great difficulty in getting out of the old track is to get some one to take the initiative, and colliery owners, like many other persons, want to see their way clear before venturing on a new and untried path. In steam coal a steady business has been done, and shipments from Grimsby have been good for the season, whilst there has been no change with respect to other descriptions of coal. At several collieries work has been resumed where the men were on strike, and the relations between masters and workmen are now more satisfactory than they have been for a long time.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Oct. 24.—Again another terrible catastrophe has occurred in our midst. By the accident on the Taff Vale at Pontypridd (in the Rhondda Valley) a dozen persons have been killed and numbers injured. The Taff Vale directors have always been noted for careful management, and since the opening of the line, some 30 or more years ago, this is the first accident of the kind that has happened. The Alexandra Dock directors are proceeding vigorously with their new timber pond at Newport, which will be opened in the course of a few weeks. A large development in the timber trade may be confidently looked forward to, as it is understood that the great railway companies having connection with the port are prepared to offer special facilities for buyers at a distance. Another work about Newport. The new metal market there was opened last week, and there was a fair amount of business transacted. Its establishment is likely to prove a great boon to those interested in the staple trades of the district.

Among the awards to local firms at the Paris Exhibition may be noted the following:—Abernant Ironworks and Collieries Company, Glyn Nath, silver medal for bricks; Cambrian Patent Fuel Company, Cardiff, honourable mention for patent fuel; Carmarthen Slate Company (Limited), Portmadoc, honourable mention for slates; Mr. David Davies, Crumlin, silver medal for steam strikers; Messrs. D. and H. C. Evans, Swansea, honourable mention for anthracite coal; Great Western Colliery Company, Cardiff, honourable mention for coal; Messrs. E. Moorwood and Co., Llanelly, honourable mention for sheet-iron and tin; Messrs. Palmer, Morgan, and Co., Cardiff, honourable mention for coal; Messrs. A. Taylor and Co., Cardiff, honourable mention for coal; and Wayne's Merthyr Colliery Company (Aberdare), silver medal for coal.

The Iron Trade shows no sign of improvement, but rather seems to get worse as time goes on. There is little or no demand for rails, and it is apparent more and more every day that only in exceptional cases do buyers order iron. Why should they, when steel, with its greater durability, can be obtained with such little difference in cost? What orders are in hand are being executed at very low rates. The bar trade is also dull, and no signs of an improvement are here visible; and some think that lower prices will have to be submitted to before trade regains anything like animation. Business at the steelworks is fairly good. There are some few indications of an alteration for the better in the Tin-Plate Trade. Prices have not altered, but they are a little firmer; and when the restriction of make comes into operation hopes are entertained of an improvement in quotations.

There is but little alteration in the coal industry, but business is slightly brisker this week. Shipments have been rather above the average, competition to sell, despite the low prices, is keen, and the output is large, although no change in quotations can be announced. The enquiry for steam qualities is good, and large quantities are shipped foreign; house coal is by no means in such good request as it ought to be at this season of the year. Patent fuel is quiet, but some fair orders are in hand.

The Penrhynwiler Company, whose property is adjoining to that of Messrs. Nixon's and Co., have struck the 6-ft. coal, proving 7 ft. 8 in. thick, of excellent quality. This, with the 4-ft. seam won about three weeks ago, and which is 7 ft. thick, will make this property one of the finest collieries in the Aberdare district. The depth at which the coal was reached is 543 yards.

TRADE OF THE TYNE AND WEAR.

Oct. 24.—There is little change in the Coal Trade in Durham, rather more enquiry for coke may be noted, but many of the coking works have been very moderately employed of late. The demand for house coal has hardly improved so much as was expected a week ago. Shipments of gas coal at Tyne Dock, and other places on the Tyne, and at the Sunderland Docks, and also at Seaham, continue large. The new winning at Silksworth has been considerably developed, about 1500 tons of coal being worked per day, and arrangements are in progress which will result ultimately in the output of double that quantity. The sinking of the new shaft at Whitburn continues, and it is expected to be completed to the bottom of the water-bearing strata shortly. No general movement has yet been made towards a reduction in the wages of the Durham miners, but the men have got notice in some localities, and it is certain that the present rates cannot be much longer maintained. The margin of profit is so small where there is any at all that the fact is becoming recognised that some change is inevitable. The whole of the workmen employed at West Pelton Colliery, the property of Messrs. Joicey, have received a fortnight's notice to terminate their engagements. The notices, which will expire on Nov. 1, include both miners and also the workmen above bank. Between 200 and 300 men and boys will thus be thrown out of employment. It is not known what is the cause of the stoppage, as the colliery has been until recently working moderately well.

In Northumberland matters do not improve in the steam coal trade, the Dennington Colliery has not been restarted, and it appears probable that the works will be closed sometime. Notice has been given to the mechanics also at Seaton Burn and other places of an extension of the hours, and as the men threaten resistance some stoppage may result from this cause. The Northumberland coal-owners held a meeting in the Coal Trade offices on Saturday to consider the present state of trade in the county. After discussion the secretary, Mr. Thomas W. Bunning, was instructed to send the following circular to the secretary of the Northumberland Miners Union. "I am desired to inform you that the owners will be obliged if you will kindly send a deputation here next Saturday, the 26th inst., to discuss with them matters in reference to the depressed condition of trade, and especially to consider whether some improvement cannot be effected by increasing the working hours, and reducing the present rate of wages." From the above it will be seen that no definite amount of reduction is stated, but it is said that at least 10 per cent. will be asked.

The best steam coal at present only realises 9s. per ton, and good medium sorts 8s. The competition between those coals and South Wales coals is very keen at present, and this is likely enough to ruin both interests. Only one colliery at present ships the coal at Blyth on the north side of the river, and they thus gain more than 1s. per ton over those who ship in the Tyne from that district. What is urgently required is the improvement of the harbour at Blyth, and short railways from the works in that district to connect them with this harbour. The new railway on the north side of the Tyne from Byker to Walker and Percy Main is to be opened shortly, and a new trade to the district is to be started at St. Peter's Station on this railway—an extensive spinning factory.

There was a better attendance at Middlesbrough on Tuesday than at some recent markets, but the business was very quiet, and but little iron now changes hands, the most that is being done being relegated to second hands, who offer iron at below makers' rates. As was the case last week, some of the merchants offer No. 3 at 37s. to 37s. 3d. net, but makers ask generally 38s. 6d., less commission, though some who are rather pressed would take 38s. Forge iron is rather scarcer, and slightly in excess of the ordinary rates as compared with No. 3. Both makers and larger merchants are inclined to adopt a waiting policy. Though the Scotch pig market still shows

lower rates, the deliveries from Cleveland of pig-iron have not diminished; last week they amounted to over 5200 tons more than was sent at the corresponding period of the previous year. The Scotch market is, however, too low to admit of fresh purchases of Cleveland iron, the deliveries now made being in pursuance of old contracts. Fair shipments continue to be made on foreign account. Trade, however, is limited all round by the prevailing commercial uneasiness, and merchants and traders of all descriptions are restricting the transactions within narrower and comparatively safer lines. There is scarcely any speculation in progress. The general tone of trade is, however, healthy, there having been no failure since the commercial crisis in the trade of this district. Some additions are being made to the foundry and smaller class of steelworks in the district, and the large steel rail mills of Bolekew, Vaughan, and Co. are fully employed, and have a large order in execution for the North-Eastern Railway. There is no demand now reported for iron rails except for colliery and tramway purposes. The ship-plate trade is moderately active. Hopkins, Gilkes, and Co. have just laid down a new mill for making a superior class of plates from Danks' iron. The pipe manufacturers are doing an active trade, and general foundries seem to have rather more employment. Prices of finished iron unaltered.

ELECTRIC ILLUMINATION.

The lodging during the week of Mr. T. A. Edison's petition for an English patent, a "method and means for developing electric currents and lighting by electricity," affords assurance that at least, at the end of six months from its date, it will be known whether he has made any real progress, and if so what amount of progress towards rendering electric illumination practicable. It is remarkable that the title does not, although the provisional specification nevertheless may, contain any reference to the sub-division of currents, which is the more significant as a week previously Mr. Antoine Arnaud actually applied for a patent for "indefinitely dividing electric currents," and experiments have since been made in London by him which were considered not unsatisfactory by those who witnessed them. Mr. C. W. Siemens has also applied for a patent for "improved means and apparatus for electric illumination," and during the week a trial has also been made by the Rapiéff lamp, the invention of a Russian gentleman, Mr. J. Rapiéff. In this lamp the carbon rods which sustain the lamp are four in number, arranged in two pairs, each pair forming an angle like the letter V. One pair is turned upside down over the other, so that the two apices meet in a common centre. The arrangement would then resemble a letter X, were it not that while one pair has its broadside towards the spectator the other pair presents its edge. Where the four carbons meet—or rather converge—there is the light. Of course if the two pairs of carbons were actually to touch each other the current would pass without causing more than some degree of incandescence, but being adjusted to a proper distance the carbons serve to sustain the light, the electric arc being formed between the apices. By means of a counter-weight operating on a fine endless cord the carbons are drawn over friction wheels and left in their right position. A set-screw provides for the due adjustment of the carbons, so as to regulate the length of the electric arc. In the event of the current being interrupted by any casualty an electromagnetic arrangement comes into operation, which instantly restores the current and re-establishes the light. The carbons may be of considerable length, so as to last from seven to ten hours. As one of the carbons can be removed and another substituted without interrupting the current, the duration of the light may in that way be made continuous. But without any manipulation the carbons will sustain the light for the number of hours already specified. Through the agency of the set-screw there is an extraordinary amount of control exercised over the light, corresponding in some degree to the effect of the ordinary tap for regulating the size of a gas flame.

An important feature claimed for the Rapiéff lamp is that the intensity of the light can be varied at pleasure—a claim which few will be inclined to admit without ocular demonstration, since hitherto it has been found in practice that with any given lamp it has been compulsory to keep it at its best, or lose the light altogether. And there is another curiosity to be explained, which is that, assuming the Rapiéff lamp to possess the extraordinary peculiarity mentioned, nothing more has been done to make the discovery known during the eleven months the patent has been in force. It is probable that as much nonsense—such as the light emitted from the incandescent carbons modifying the colour of the light due to the current—has been written about the Rapiéff as about the Edison discovery. It has been declared that the Rapiéff light is "brilliant and clear, without the presence of any blue rays," and that "predominance is given to the light emitted by the incandescent carbons," but these are evidently due to want of knowledge of those who made them as to the essential properties of both light and electricity. It is further stated that the Rapiéff light has lately been seen in London by Mr. Fontaine, who highly approved the steadiness with which it burned. An important feature in the arrangement is said to be that the extinction of one or more of the lamps in the series leaves the rest still burning, but this is only what was unfortunately proved at the Jablonskoff experiments at Shoreditch a fortnight since—two of the lamps went out some minutes before the remaining four ceased to act. Again, in the Rapiéff, as in the Jablonskoff experiments, a couple of Gramme machines were used but the actual horse power employed was not ascertained, although it was evident in both cases that more power was used than it was desirable to state.

The failure of the Farmer-Wallace experiments at Plough-yard, Shoreditch, was noticed in last week's Journal, and reference was made to Mr. Ladd's ability to make any philosophical experiment "go" if there were any "go" in it; it will, therefore, be interesting to know Mr. Ladd's views as to the future of electric illumination. He states that in consequence of having had much experience with the subject, many persons are applying to him to ask if the electric light is going to supersede gas. One gentleman stated a company had bought a field for the purpose of building a gasworks; they were now afraid to do so. Gas directors have come for information to lay before their next meeting, and he is compelled to have an extensive correspondence, all showing the panic in connection with gas as well as electric light. That electric light will take the place of gas for large spaces, railway stations, halls, workshops, and such places there can be no doubt; but the present state of our electrical knowledge holds out no hope of its ever superseding the present system of house lighting and other domestic purposes. He recollects the time railways were to do away with the use of horses, and machinery with hand labour, and the same has been the case with every new stride; and so now those who can least afford to lose their incomes are selling their gas shares to those who are more shrewd, and can see further ahead. Mr. Ladd said to one gas director he supposed he was buying shares, and his answer was "If I had any spare cash I would lay it all out in gas shares at once." His object in writing is to try and persuade those who have gas shares to keep them.

Such an opinion from a man like Mr. Ladd ought to leave no doubt as to the position of the question of electricity against gas, and he will probably admit that he might have added that with our present knowledge of electricity, and the cost of generating it, even the Jablonskoff light is applicable only where the cost of the light is of little or no consideration. At the St. Lazare Station, in Paris, the Jablonskoff light has been substituted for gas it is true, but the cost is stated to be more than double that of the gas lights replaced, and which were ample for the requirements.

Even the absolute novelty of the principle upon which is based the system of illumination which is creating so much noise is far less than many suppose, for Fontaine mentions King's patent of 1845 as tending to prove that magneto-electric machines powerful enough to produce light already existed in 1845. King's invention had for its basis the use of metallic conductors, or of continuous carbons, heated to whiteness by the passage of an electric current. The principle of lighting by means of incandescence was tried by several inventors subsequent to King, but no real progress seems to have been made until about five years back, when another light

of the same class made some noise; and many of the patents applied for within the last month really appear from the titles, which are at present all that can be seen, to be doing little more than reviving attempts which have been tried and failed many years ago. Among the patents recently applied for on the subject, Colonel Lane Fox claims "improvements in obtaining light by electricity and in conveying, distributing, measuring, and regulating the electric current for the same, and in the means or apparatus employed," besides "improvements in the application of electricity to lighting and heating purposes." Two other inventors, Messrs. Aronson and Farnie, think they have discovered "an imperishable substitute for carbon," especially adapted to electric illumination. It is needless to say that no discovery in this field could be more important than this, if its promise can only be made good. It is to be borne in mind that although the electric light consumes pure carbon in a very expensive fashion, it does not consume it in the slightest degree in the character of fuel. It is simply a conductor, but a conductor subject to waste. If, therefore, the carbon points of Mr. Lontin and Mr. Rapiéff, or the parallel edges of Mr. Wallace's "carbon-plate lamp," could be rendered absolutely indestructible, instead of gradually wearing away as they now do, the light would be in no wise impaired, while an immense step would have been gained in the power of keeping the negative and positive poles uniformly at the distance most favourable to the strength and brilliancy of the voltaic arc.

But it cannot be too strongly urged, as it has been already in the *Mining Journal*, that commercially considered neither the placing of several lamps on one circuit, nor the cost of the carbons consumed, are the real points at issue. The great question is the minimum cost per lamp at which the electricity can be generated, and although no direct answer has yet been given to the question it may be concluded from indirect statements which have been authoritatively made that as a general illuminating agent electricity would cost from 20 to 25 times the price of gas. As to the brilliancy of the light there can be no question; but in this connection the City of London have received a very instructive and significant report. Mr. Haywood considers that in the present state of things the use of opalescent globes is absolutely necessary, and, therefore, remarks that one-half the nominal intensity of the light will be always lost, "a point also to be held in mind," he observes, "in considering its practical illuminating power compared with that of coal gas." In reference to the extraordinary illumination of the Avenue de l'Opera at Paris, Mr. Haywood says it "is brilliant in the extreme," but he goes on to show that it could not be otherwise, seeing that the amount of light was nominally equal to 6400 gas burners in a thoroughfare not three-fifths of a mile long. This is placed in juxtaposition with the fact that the whole City of London has only about 3050 gas lamps, though the burners are, perhaps, somewhat larger than those which exist in Paris, and the gas in the City is brighter than that of the French capital, the lighting power of the former being at least 16 candles, while the Paris gas is only equal to 12 candles on the same standard.

THE APEDALE COLLIERY ACCIDENT.

GOVERNMENT ENQUIRY.

An enquiry, directed by the Home Secretary, was held at Stoke-on-Trent, on Saturday, in reference to the gas explosion at the Barley Pit, Apedale, on March 27, when 23 men and boys were killed. The enquiry, which amounted to a prosecution of the manager of the colliery, Mr. James Henry Price, was heard before Mr. W. Spooner, judge of the County Court, assisted by Mr. Evans, Government Inspector of Mines for the Derbyshire district. Mr. Booth appeared for the Home Office, and Mr. J. Underhill (instructed by Mr. Welch) for the accused. A good number of mining engineers and managers were present during the hearing of the case.

Mr. Booth explained that the charges against Mr. Price, of incompetency and mismanagement, were laid under the 32nd section of the Coal Mines Regulation Act, and were as follows:—(1) That the defendant, having the daily supervision of the mine, did not, on March 27, cause an adequate amount of ventilation to be constantly produced in the pit, to dilute and render harmless noxious gas to such an extent that the working places and roads of such mine should be in a fit state for working and passing therein; (2) that the defendant did permit the return air used for the ventilation of the colliery to pass up a dumb drift, and over the furnace of the upcast shaft, the outlet of the dumb drift into the upcast shaft being so near to the fire of the furnace that there was at all times a danger of an explosion happening if the return air used for ventilating the pit should become so charged as to be explosive; (3) that the defendant did, on March 27, permit a thirling or air pass-ages to be cut through from the north dips of the colliery into a brook called the furnace dip, by means of which the air of the north dips had its course considerably shortened, and was taken more directly to the upcast shaft, the effect being to decrease the opportunity for the gas which was carried away in the current and ventilation to become thoroughly diluted by mixing with the air; (4) that in consequence of the defendant's neglect and mismanagement an explosion occurred, whereby 23 men and boys were killed, and the lives of the other workmen were seriously endangered.

Mr. J. C. Cadman, mining surveyor, in the employ of Messrs. Stanier and Co., produced plans of the Barley pit, and explained the workings and ventilating arrangements. The defendant had been manager about 24 years, and before that was assistant to Mr. Bostock, the former manager. Mr. Bostock planned the workings. The top of the arch of the side drift was 6 ft. higher than the top of the arch of the furnace. By Mr. Underhill: He attended the inquiry in this case. It was a very full enquiry, and the jury added to their verdict that there was no positive evidence to show how or where the gas accumulated or how or where it exploded, and that there did not appear to be any blame attached to the management of the pit. He considered the ventilation very good on March 22. The quantity of air going into the pit was 110,000 cubic feet per minute. Men had complained of there being too much draught in the pit, and he had heard of a man obstructing the ventilation. Mr. Price had carried on the works as Mr. Bostock had planned them.

John Shenton, head butty at the pit at the time of the explosion, said the accident took place in the 8-ft. seam. The reports of the mine for March 27 were that the workings were quite clear of gas. He (witness) examined the whole of the lamps that morning, and they were all locked and in good order. He had never heard any complaint of gas in the pit.—Cross-examined: Before this explosion he always considered it was a well-conducted colliery, with plenty of air in it. There was only one complaint, and that was that there was too much air. One workman was punished for checking the ventilation. He saw nothing up to the time of the explosion to give him any idea that the circulation was in any way impeded. There was no warning of any accumulation of gas. Where there was an accumulation it almost always gave warning. The 8-ft. seam was a very dusty seam, and the dust mixed with gas was explosive. From 23,000 to 25,000 ft. of air would go down into the Eight-seam per minute, which would be about 1000 ft. per man. That was thought sufficient.—Re-examined: He had never heard of dust exploding, except when mixed with gas.

Mr. Wynne, Government Inspector of Mines, said he was of opinion that the gas exploded at the furnace, and that gas escaping from a fault had made its way straight on to the furnace. The thirling rendered the mine positively dangerous, because the gas, instead of circulating and mixing with the fresh air, went straight to the furnace, and that was the cause of the explosion. He considered the making of the thirling evidence of incompetency on the part of the ventilation. Such a change ought never to have been made until the ventilation had been placed on a better footing. The passage of foul air over the furnace ought not to have been allowed. Mr. Wynne was cross-examined at great length with a view of showing that he had been well aware of the mode of ventilation in the mine, and had sanctioned it by not interfering with it. He said he told Mr. Bostock, the former manager, 24 years ago, that the principle of ventilation was very bad; but he had not been down the pit since then until this explosion, and he could not remember whether there was a furnace when he first visited the pit. He had heard of the system of venti-

lation in use, and he had not condemned it, because he understood the owners were about to construct a fan. The furnace might have been sufficient to condemn the system when they were doing all they could to remedy the defect. Later on Mr. Wynne said there would have been no enquiry into Mr. Price's conduct if it had been left to him. Mr. Booth said the enquiry had been ordered at the suggestion of Mr. Maule, Q.C.

Shenton, recalled, said the furnace was put up by Mr. Bostock. Mr. S. B. Gilroy, Assistant-Inspector, said he was of opinion that the explosion was caused by the firing of a shot. The thirling would have been an advantage except in the case of a sudden and unusual influx of gas, when it would be a danger. Coal dust was a very serious auxiliary to fire in an explosion. It was thought that the air in the mine was sufficient for general purposes, and as the owners were constructing a fan it was not thought desirable to interfere. Cross-examined: He did not think that dust alone would explode.

At this stage of the proceedings Mr. Spooner said it was a very proper thing that the enquiry should take place; but both himself and his assessors agreed that there was no evidence of incompetence or gross negligence. He could not possibly say that Mr. Price was not fit to be trusted with the management of a mine. The case would be dismissed.

This announcement elicited loud applause from the audience at the back of the court.—Mr. Underhill asked for costs, and an order for costs was made upon the Treasury. The result of this application also was much applauded.—The Court sat from eleven to five.

CHESTERFIELD AND DERBYSHIRE INSTITUTE OF MINING ENGINEERS.

The quarterly meeting of members was held at the Angel Hotel, Chesterfield, on Saturday. Lord Edward Cavendish, the President of the association, was unavoidably absent, and the chair was taken by Mr. J. P. Jackson, J.P. The following gentlemen were declared to have been duly elected members of the association:—Mr. Joseph Bullock, Eastwood, Notts.; Mr. W. H. Fairburn, Rhymer Iron-works; Mr. W. Johnson, telegraph engineer, Sheffield; Mr. George Kemp, Clay Cross; Mr. Thomas Kitchens, Dronfield; Mr. Nathan Mellers Newton, Alfreton; Mr. W. A. Tyzack, Sheffield; Mr. J. C. Wild, Ellistoun Collieries, Leicester; Mr. W. Wilson, jun., Sheffield; and Mr. W. Dutton, Loughborough. Mr. George Bramley, Clay Cross, was also elected an honorary member.

A paper by Mr. D. P. Morison, on the "Results of some Experiments on the Effects of Coal Dust in Colliery Explosions," and read and discussed at a previous meeting, remained open for further discussion. A letter from Mr. Morison was read, stating his inability to be present to reply to the criticisms on the paper at the former meeting, and enclosing a few observations in writing, which were read by the secretary, and on the suggestion of the Chairman further discussion on the subject was postponed until the next quarterly meeting.

Mr. J. A. Longden's paper on "Colliery Brickworks" did not elicit any further discussion, and was declared closed.

A very interesting discussion then took place on Mr. A. H. Stokes' paper entitled "Economic Geology of Derbyshire," in which the Rev. J. M. Mello, Mr. J. A. Longden, Mr. Crowder, Mr. Coke, and the Chairman took part, and much valuable information relative to the geology of the county was the product; indeed it was generally admitted that this paper and the discussions thereon were amongst the most important and valuable of the transactions of the Institute.

A paper on "Schram's Rock-Boring and Air-Compressing Machinery," written by Mr. Richard Schram, was read by Mr. Howard in the absence of the author.

THE WEST OF ENGLAND COMPRESSED PEAT COMPANY.

We have on several occasions referred to the progress of this successful company, and it may be fairly looked upon, in these times of commercial depression, as a proof that when an undertaking with a fair prospect of success is placed before the investing public there is no lack of support. It is barely six months since this company was incorporated, starting, it is true, under unusually favourable auspices, for we see amongst the directorate the names of Major Hinton, a gentleman who has spent much time and money in endeavouring to show the vast importance of the utilisation of peat; Mr. Alderman Head, who has been thrice in succession elected Mayor of the City of Exeter; and William Greene, Esq., brother to Benjamin B. Greene, a Governor of the Bank of England, and also to Edward Greene, M.P. for Bury St. Edmunds. The capital of this company was quickly subscribed for at par, and as the operations of the company advanced quickly went to premium, and are now freely bought and sold at about 25 per cent. above par, the advancing value being anticipated by a London firm, which secured at the outset a considerable number in the interest of their clients. Of course, there are many reasons to justify these steadily advancing quotations. The Dartmoor peat is considered as differing vastly from the generality of peat; its density and nearest approach to the carboniferous state makes it more valuable as a charcoal and for fuel generally. The immense thickness of the beds—in some instances 30 ft.—and the facilities by which these great deposits can be drained from the heights of Dartmoor, all tend to add to the elements of success; but the great feature in the enterprise is the railway now in course of construction, which will connect the peat beds with our entire railway system; and the high favour in which the undertaking is held was clearly shown by the important gathering of so many prominent men of the county of Devon and other parts a few weeks back at the turning of the first sod of the Peat Railway by the High Sheriff of the county. There were several mayors, magistrates, and other representatives of corporate bodies, including that of the City of London, and the whole proceedings and speeches were all of the most gratifying and interesting nature. We are not sufficiently acquainted with the working and cost of production as many of the speakers undoubtedly were; but if only one half of the success so reasonably predicted is attained, there is nothing to prevent the shares in this company doubling their present price; for depend upon it, although peat can be sold at a much less price than coal, its cleanliness and wholesome character, so warmly commended by the faculty from a sanitary point of view, will always procure for it a ready sale, where the price will be a secondary consideration. It was our pleasing duty to recommend this enterprise on its advent, and we sincerely congratulate all concerned on the progress made in what we conceive to be the opening up of a most important field of national industry.

TAKING LEVELS FOR DRESSING FLOORS AND BUILDINGS.—A simple and ingenious little apparatus for taking and indicating levels and perpendiculars for buildings and similar purposes has been invented by Mr. JOHN RYAN, of Battersea, who proposes to take a board of wood of a suitable length (or it may be a length of metal or other suitable material), the edges of which are planed or made perfectly level and true one with the other. In the centre a dial is set in or mounted, arranged with divisions to indicate the level or amount of the angle of any horizontal or perpendicular line upon which the edge of the levelling instrument is placed. A pointer is mounted upon an axis in the centre of the dial, the opposite end of the pointer being weighted so as to cause it to assume a perpendicular position at all times by its own gravity, and thus indicate upon the dial level perpendicular and angular lines, according to the position in which the instrument is placed.

MANUFACTURE OF IRON AND STEEL.—Mr. JAMES NOAD, of Blairstown, proposes to prepare from iron a hydrated peroxide of iron by forming heaps or beds of the metal, and keeping it moist with water or a saline solution, and in some cases he hastens the oxidation of the iron by the application of a galvanic battery. He takes the hydrated peroxide thus obtained and reduces it to fine powder, and thus employs the finely powdered oxide—he places at the bottom of a crucible a quantity of the oxide, and over it places cast-iron;

he heats the crucible in a furnace until the iron is melted, and as soon as it has been acted upon by the oxide he casts the metal into ingot moulds. The ingots thus obtained he employs in the manufacture of steel by remelting them with iron or steel scrap, in suitable proportions, according to the quality of the steel required. He also employs the hydrated oxide of iron, obtained as above described, in the refining of iron, and this he does by lining or covering the hearth or bed of the furnace with the oxide, so that the melted metal may come into contact with it.

In the Court of the Vice-Warden of the Stannaries, Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the TREMENEERE MINING COMPANY.—ALL CREDITORS or CLAIMANTS of the above named company, who have not received notice from the Official Liquidator thereof that their claims have been already admitted, are hereby required to COME IN and PROVE their SEVERAL DEBTS or CLAIMS at the Registrar's Office, Truro, on Saturday, the 2nd day of November next, at Eleven o'clock in the forenoon, or in default thereof they will be EXCLUDED from the BENEFIT of any DISTRIBUTION made before such proof. And for the purpose of such proof they are to attend in person, or by their solicitors or competent agents at the time and place above mentioned.

FREDERICK MARSHALL, Registrar.
Dated Registrar's Office, Truro, October 22, 1878.

In the Court of the Vice-Warden of the Stannaries, Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the SOUTH WHEEL MARGARET MINING COMPANY.—ALL CREDITORS or CLAIMANTS of the above named company, who have not received notice from the Official Liquidator thereof that their claims have been already admitted, are hereby required to COME IN and PROVE their SEVERAL DEBTS or CLAIMS at the Registrar's Office, Truro, on Saturday, the 2nd day of November next, at Eleven o'clock in the forenoon, or in default thereof, they will be EXCLUDED from the BENEFIT of any DISTRIBUTION made before such proof. And for the purpose of such proof they are to attend in person, or by their solicitors or competent agents, at the time and place above mentioned.

FREDERICK MARSHALL, Registrar.
Dated Registrar's Office, Truro, the 24th day of October, 1878.

In the Court of the Vice-Warden of the Stannaries, Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the NEW ROSEWARNE MINING COMPANY.—By the direction of His Honor the Vice-Warden, Notice is hereby given, that on the 6th day of November next, at the Registrar's Office, at Truro, in the county of Cornwall, at Eleven o'clock in the forenoon, this Court will proceed to MAKE a CALL of ONE POUND TWO SHILLINGS PER SHARE on all the contributors of the said company, settled on the List of Contributors as present members thereof. All persons interested therein are entitled to attend at the time and place aforesaid to offer objections to such call.

JOHN HENRY HAMLEY, Official Liquidator.
Dated Stannaries Court Office, Truro, October 24th, 1878.

WEST TANKERVILLE MINING COMPANY (LIMITED).

IN LIQUIDATION.

ALL PERSONS claiming to be CREDITORS of the WEST TANKERVILLE MINING COMPANY (LIMITED) are required, on or before the 9th November, 1878, to send a notice, in writing, containing their NAMES and ADDRESSES, and the particulars of their DEBTS or CLAIMS, addressed to the Liquidators of the West Tankerville Mining Company (Limited), 8, Austin Friars, London; or, in default thereof, they will be EXCLUDED from the BENEFIT of any DISTRIBUTION of ASSETS made before such notice shall be received.

WILLIAM EDWARDS, } Liquidators.
J. H. MURCHISON, }

Dated this 23rd day of October, 1878.

TO COLLIERY PROPRIETORS, MACHINISTS, AND OTHERS.
CHRISTOPHER DDD AND AVONETHA COLLIERIES, NEAR RUABON.
MR. W. H. HILL WILL SELL, BY AUCTION, on Tuesday, October 29, 1878, on the several banks of the above pits, which are situated about a mile from Ruabon Station, on the Great Western Railway, the WHOLE of the VALUABLE

MACHINERY AND PLANT.

Consisting of excellent VERTICAL WINDING ENGINES, steam pipes and connections complete; PUMPING ENGINES; drums for round and flat ropes; EGG END BOILERS; pit heads and pulleys; conducting rods; tippers; carriers; pit bank and road weighing machines; windlass; landing plates; several hundred yards of flat and round wire ropes; a large quantity of various tram rails; tipping wagons; trolleys and pychies; the several buildings and erections of brick and slate; sundry old iron and timber; several pieces of office furniture; and numerous other effects, which are fully described in catalogues to be had seven days prior to the sale from the Offices of the Auctioneer, Brook-street, Oswestry.

John Phillips, Stryt-issa, Ruabon, will, on receiving a clear day's notice, by letter or otherwise, be prepared to show the several lots.

Sale to commence at Twelve o'clock punctually.

FOR SALE,

VALUABLE IRONWORKS AND MINERAL LANDS.

THE PERU STEEL AND IRON COMPANY OFFER FOR SALE ALL THEIR PROPERTY AND ESTATE, situated in the counties of ESSEX and CLINTON, State of NEW YORK, U.S.A., comprising over 21,000 acres of WOOD AND FARM LANDS, the buildings, structures, and erections upon such lands, with the FORGES, FURNACES, ROLLING MILLS, MACHINERY, gearing, and fixtures appertaining to and contained in such buildings, the LEASEHOLD INTERESTS, the MINERAL ORE, and MINING interests, rights, and reservations, the DAM, the interests, rights, and privileges in LAKES, RIVERS, and other waters, the WHARVES and the ROADS.

For further description of the property, terms, &c., address to NELS MITANDER, Selling Agent by Power of Attorney, care of R. ALRUTZ, Esq., 57, Gracechurch-street, London, E.C.

QUARRY-SLATE AND FIRE-CLAY—TO BE SOLD, IN NORTH WALES. 250 acres, in full working order. Turning out with present small staff (16 hands) 30,000 slates per month. Two miles from rail. £8700 has been expended in plant, &c. The inventory of which includes some valuable MACHINERY, ROLLING STOCK, and accessories. Lease 42 years to run. Price £10,000; two-thirds may remain at a low rate of interest. For full particulars, apply to Mr. GEORGE F. HARRINGTON, 17, New Bridge-street, Blackfriars (nearly opposite Ludgate Hill Station).

FOR SALE, BY PRIVATE CONTRACT, an existing LEASE, on low royalties, for a long term of years, of the No. 3 RHONDDA and STEAM COAL SEAMS, lying under a compact single mineral property of nearly SEVEN HUNDRED ACRES in extent, situated in the county of GLAMORGAN, adjoining and connected with a public line of railway. Also, OPENED LEVELS upon the No. 2 RHONDDA SEAM of COAL, in the same property, with the PLANT, BUILDINGS, TWENTY WORKMEN'S HOUSES, MANAGER'S HOUSE, and PUBLIC HOUSE.

The depth to the No. 3 Rhondda, near the deep side of the property, is estimated to be under 100 yards.

Also a LEASE of the SURFACE, which is well wooded and watered. The Farming Stock upon the premises to be taken at a valuation.

For further particulars and to treat, apply to Messrs. BROWN and ADAMS, Guildhall Chambers, Cardiff.

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FOR SALE, A SILVER-LEAD MINE, situated in CORNWALL. In the same strata of silver-lead bearing ground as the celebrated Wheal Mary Ann and Trelawny Mines. Prospects excellent. Easy price and terms. Apply to R. J. RUTTER, 5, Pyne's terrace, St. David's, Exeter.

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GUANO! GUANO! GUANO!

THE CONTRACT NOW IN COURSE OF EXECUTION for the EXTRACTION and EXPORTATION of GUANO from MEJILLONES, expiring in March, 1879, the GOVERNMENTS of CHILE and BOLIVIA have FIXED the date, January 15th, 1879, for the SALE, BY PUBLIC COMPETITION of FOUR HUNDRED THOUSAND TONS of the said GUANO.

The sale will take place at Santiago at the above-mentioned date. The particulars and conditions of sale, and also the results obtained from the said Guano through reliable scientific analysis, may be consulted at the Chilean Consulate, Gresham House, London, E.C.

COAL MINES REGULATION ACT, 1872.

EXAMINATION FOR MANAGERS' CERTIFICATES OF COMPETENCY.

DISTRICT UNDER THE CHARGE OF THOMAS EVANS, Esq., H.M. INSPECTOR OF MINES.

NOTICE IS HEREBY GIVEN, that an EXAMINATION for MANAGERS' CERTIFICATES OF COMPETENCY, under the above-named Act, will be HELD on the 30th and 31st days of October, 1878, and CANDIDATES INTENDING TO PRESENT THEMSELVES at such Examination must, on or before the 26th day of October, notify such intention to the Secretary of the Board of the above mentioned District, from whom all information as to particulars can be obtained.

By order of the Board.
The Wardwick, Derby. WILLIAM SAUNDERS, Secretary.
N.B.—Persons who do not reside within the District are equally eligible for examination with those who do.

Mr. E. J. JACKSON,

Associate of the Royal School of Mines,

ANALYST AND ASSAYER.

Assays or Complete Analyses made of Copper, Silver, Lead, Zinc, Tin, and other Ores. ASSAYING TAUGHT.
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STRAND CHAMBERS,

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MINING ENGINEER.

WILL SUPERINTEND or EXAMINE and REPORT on MINES on the PACIFIC COAST. Having had 14 years' experience in Gold and Silver Mining in Mexico, California, and Nevada. Government Mining Engineer for the Province of British Columbia. Any communications may be addressed Room 49, Nevada Block, San Francisco, California.

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MINING AGENTS AND ENGINEERS,

VALPARAISO AND SAN IAGO,

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Also to AFFORD INFORMATION and ADVICE to parties abroad who may contemplate or may have already invested in Enterprises on the Pacific Coast, and to take charge of Property, and to look after the interests of absentees.

Preliminary enquiries demanding personal attention and examination must be accompanied by P.O. Order for £1 sterling.

EDWARD J. JACKSON, P.O. Box 733, San Francisco, Cal.

REFERENCES:

Wm. Lane Booker, Esq., H. B. Majesty's Consul, S.F.; the Honorable Leland Stanford, Ex-Governor of California and President of the Central Pacific Railroad, S.F.; the Right Rev. Wm. Ingraham Kip, D.D., LL.D., Bishop of California; the Rev. William Vaux, Senior Chaplain U.S.A., Santa Cruz, Cal.; the Anglo-Californian Bank, San Francisco, California; the Anglo-Californian Bank, No. 3, Angel court, Throgmorton-street, London, E.C.

TO SHAREHOLDERS, AND INVESTORS IN AMERICAN MINES.

Mr. CLARENCE M. BUEL,

CONSULTING ENGINEER AND MINE BROKER,

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Enjoying unequalled facilities, is enabled to furnish RELIABLE INFORMATION respecting MINES in AMERICA.

A detailed Special Report, based on inspection, furnished of any mine in the United States or Territories upon receipt of £5. GOLD, SILVER, COPPER, IRON, COAL, MICA, and CORUNDUM MINES in VIRGINIA, NORTH CAROLINA, GEORGIA, and SOUTH CAROLINA for sale at bed rock prices.

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The general rate of interest on Mortgage Security, in which only one-third of the market value of improved farms is taken, is 6½ to 8 per cent.

Investors furnished with the mortgage as well as if the property were in England. Interest paid regularly every half-year.

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All business with Canada promptly attended to. Manitoba Lands secured.

THE

TRELLYNIA LEAD MINING CO.

(LIMITED),

HALKIN MOUNTAIN, FLINTSHIRE.

Capital £10,000, in 2000 Shares of £5 each, fully paid.

MESSRS. THOMAS BROTHERS, Strand Chambers, Strand Street, Liverpool, have much satisfaction in being able to offer for public subscription a limited number of shares in this company, at par, and believe that a careful perusal of the following particulars will justify the feeling, and convince the reader that it would be difficult to find a more favourable medium for the investment of a moderate amount of capital.

Trellynia Mine lies in the centre of a highly mineralised district, and is surrounded by well known and dividend paying mines. Being only 1½ mile from Nannarch Station on the Mold and Denbigh Railway it is very accessible for investors who like to visit the properties in which they put their money.

Considerable quantities of lead ore were raised by former workers from a series of shallow pits sunk on the outcrop of the various lodes; the present company has cleared up and extended the old workings and sunk a new shaft to a depth of 60 yards, in the carrying out of which work many tons of lead ore (as much as 40 tons in a month) have been brought to surface and sold.

Trellynia is the focus or concentrating point of a number of well known lodes running through two of the adjacent mines, and as such junctions are invariably very productive, it is only reasonable to expect a large body of ore will be found when the new works reach the point of intersection of the lodes.

The bottom of the mine being more productive than the shallow levels and pits, and there being many indications of increased richness as further depth is attained, it has been decided to sink the shaft below the 60 yard level and drive in the direction of the junction of lodes; to do this advantageously improved winding apparatus is required, and to provide it the shares now offered have been issued.

Trellynia is not a new or purely speculative mine, nor is it an abandoned mine, the working of which can only be resumed at great cost; but it is a fairly remunerative undertaking, needing only a little further capital to make it a great success.

During many years experience in mines, mining companies, and other industrial ventures, Messrs. THOMAS BROTHERS scarcely remember a more favourable opportunity for a small, permanent, and profitable investment, and, therefore, confidently recommend it to your serious consideration.

Applications for shares should be made to us without delay, from whom also any further information can be obtained.

THOMAS BROTHERS,

STRAND CHAMBERS, 5, STRAND STREET, LIVERPOOL.

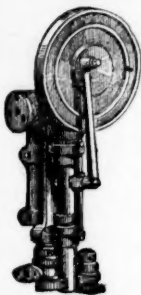
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HIGH-PRESSURE SCREW ENGINES
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Boiler Tubes, Hydraulic Tubes,
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Rate of Drilling, three to
four times as fast
as hand
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HAND POWER PATENT ROCK DRILL.
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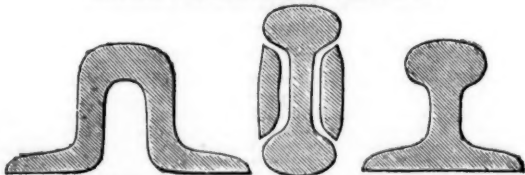
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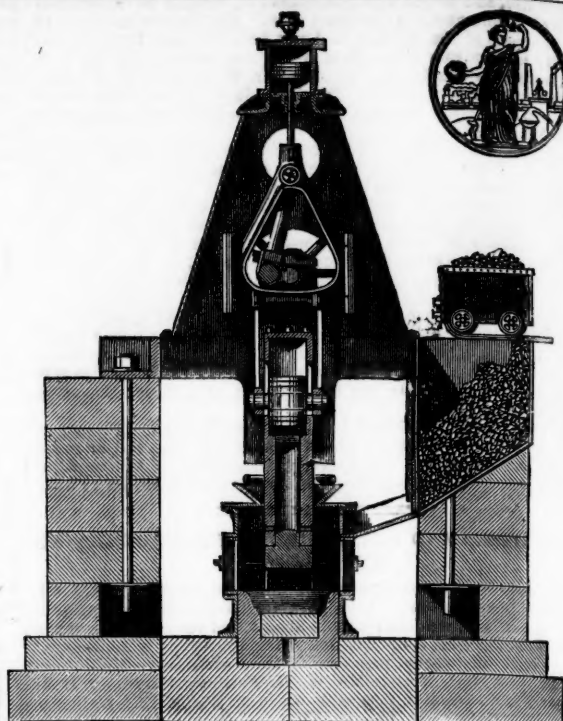
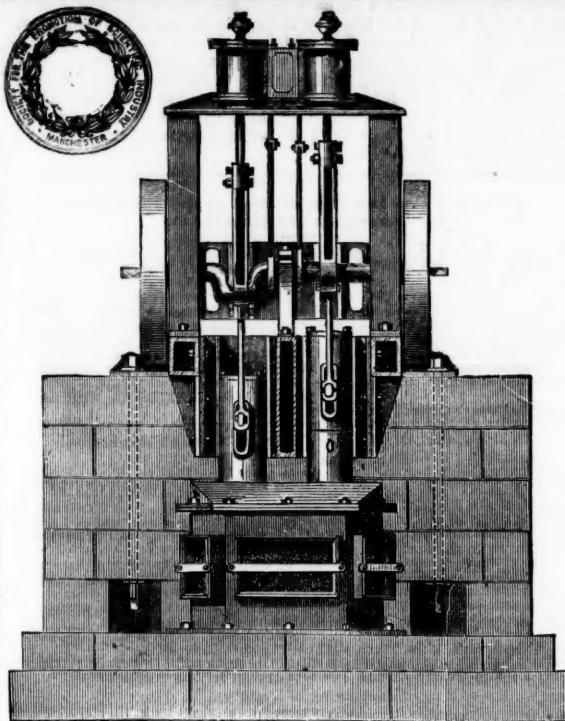
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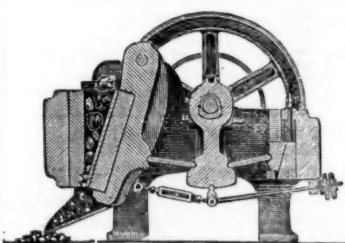
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10	Ditto, pref., 6 per cent.	10	0 0.	1½	—
20	British Wagon Co. [L.]	10	0 0.	13½	13
10	Gloucester [L.]	10	0 0.	9	—
10	Ditto, 5th issue	5	0 0.	1	—
10	Met. Rail. Car. and Wagon Co. [L.]	5	0 0.	1½	—
5	Ditto, pref., 6 per cent.	2	0 0.	¾	—
10	Midland	10	0 0.	4½	—
10	North Central Wagon Co.	20	0 0.	2½	—
5	Rail. Car. [L.] (Oldbury)	5	0 0.	6	—
10	Ditto, pref., 6 per cent.	5	0 0.	6	—
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Eastern	10	0 0..	7%
Extens., Australia and China.....	10	0 0..	7%
Great Northern	10	0 0..	7%
Indo-European	25	0 0..	20%
Mediterranean Extension	10	0 0..	2%
Reuters	8	0 0..	2%
Submarine	100	0 0..	31%
West India and Panama	10	0 0..	2%
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Cent. of New Jersey Con. Mort.	100	0 0..	6%
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Foster, Porter, and Co. [L.]	8	0 0..	0%
Gen. Phos. & Chem. Works Co. [L.] ..	1	0 0..	0%
Greenhill [L.]	1	0 0..	0%
K't Hill Tunnel [L.]	17	0 0..	10%
Hudson's Bay Company	9	0 0..	9%
Huntington Copper and Sul. Co. ...	100	0 0..	7%
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Ditto, 2nd Mort., 7 per cent.	100	0 0..	9%
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West of England Compressed Peat ...	5	0	0	
Ditto	2	0	0	

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